THE IRON TRADE REVIEW

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MORE BUYING

EXPECTED TO FOLLOW THE CORPORATION PURCHASE.

More Interest in Pig Iron at Pittsburg—Some Heavy Plate Requirements — Still Curtailing Coke Output.

The appearance of the United States Steel Corporation as a buyer of pig iron after an absence of several years is the most interesting feature of the past week. Although the sale of 40,000 tons of Bessemer was made at $1 below the quotation which had prevailed for some time, makers of basic are not inclined to reduce the quotations on their iron, as they believe that the spread of $2 between the prices of the two kinds of steel making irons has been too large. It is confidently expected that before the expiration of the 30-day option given the corporation on 50,000 tons additional, another round tonnage will be purchased, and also that independent interests will come into the market for considerable tonnages. The pig iron market continues quiet in nearly all parts of the country, although there is a distinctly better feeling at Pittsburg, and fair inquiry in some other centers. Southern pig iron is weak, and the leading sanitary interest has been able to make a purchase at a little above $13, Birmingham. The quotation of $15.25 for Virginia iron is becoming more common. The leading pump interest is in the market for 6,100 tons.

Railroad Buying

There is a good export business in rails, and the domestic trade shows a somewhat better tone. The corporation's bookings for the first ten days of February amounted to 31,000 tons. The Illinois Steel Co. reports sales of 14,000 tons in miscellaneous lots during the past week. The Pere Marquette, and Detroit, Toledo & Ironton railroads have placed orders for 1,400 tons of bridge material, most of which will be furnished by the Lackawanna Bridge Co.

Plates and Shapes

The construction of the Bull Run water system at Portland, Ore., will require 14,000 tons of plates, on which bids will be opened March 18. Seattle will need 1,000 tons for steel water mains, and Portland, Me., will require 600 tons. The Avery building at Peoria, Ill., 1,200 tons, has been awarded to the Indiana Bridge Co. While it is confidently believed that there will be great building activity throughout the country as soon as the weather moderates, the lull in the placing of orders has resulted in some price shading, especially on shapes, on which 1.50c, Pittsburg, has been quoted, but this price is by no means general, and one important independent company, which found that it did not stimulate the placing of contracts, is now quoting 1.55c.

Wire Products

The leading wire interest reports orders considerably in excess of shipments, and its bookings in the past few days have been the heaviest since Jan. 1, although the spring movement has not yet begun. Probably some price concessions have been made by independent interests, but reports of heavy reductions on prices of wire have been grossly exaggerated.

Sheets and Tin Plate.

Better deliveries are being given on some gages of sheets, and premiums are not so frequently paid. Specifications on tin plate contracts are steady. The new plant of the Phillips Sheet & Tin Plate Co., at Weirton, W. Va., will be started next week, and the Jones & Laughlin Co. is accepting business for its Aliquippa tin plate plant for June delivery. Inquiries for steel bars have increased, and there is less irregularity in the prices of iron bars.

Tubular Products

Makers of tubular goods report some good contracts in prospect. The volume of steel pipe business booked since Jan. 1 has exceeded that of the corresponding period of last year. Duluth has ordered 2,000 tons of cast iron pipe from the leading interest.

Coke and Old Material

Weakness has continued in the coke market, but the curtailment program has resulted in checking the downward tendency of prices. It is now believed that the Steel Corporation will not be a buyer of coke. The inability of coal operators and other employes to agree upon a wage scale is causing some uneasiness. The old material market shows very little life, and in some quarters there is a decided softening in prices, although the weather has not been favorable for the movement of old material.

LOW PRICES

Paid for Southern Pig Iron by a Sanitary Concern.

Pittsburg, Feb. 16. (By wire.)

Later developments in the local pig iron situation show a slightly stronger tone, and several additional inquiries are noted, although most of them call for small tonnage. The Standard Sanitary Mfg. Co. has bought 2,500 tons of southern No. 2 iron for its Louisville plant. The purchase was made through Cincinnati dealers and for March and April delivery. The price is given as slightly over $13, Birmingham. An inquiry for about 3,000 tons of basic is noted. Foundry pig iron probably shows more activity than the other grades, with regard to the number of orders pending. In the absence of any sales of basic, sellers are still quoting $17, valley.

EXTENSIVE ADDITION OF A YOUNGSTOWN CONCERN.

Pittsburg, Feb. 16. (By wire.)

The Youngstown Iron & Steel Roofing Co., Youngstown, has awarded contracts for engines, electric generators and rolling mill power machinery to the C. & G. Cooper Co., Mount Vernon, O. This new equipment includes a 48 x 60 simple Corliss mill engine for direct driving a 72-inch plate mill from the main engine shaft, and for driving a train of four hot mills through a pair of steel gears and jack shafts. This mill layout will be furnished complete with flywheel, machine cut steel gears, jack shaft, pillow block, etc., for connecting up with the mill train. The C. & G. Cooper Co. has also received a contract for a complete electrical unit of 500 kilowatt rated capacity direct connected to a 750-horsepower cross compound Corliss engine. Julian Kennedy, engineer, of Pittsburg, is acting in a consulting capacity.

THE WEEK IN IRON CENTERS

PITTSBURG.

Some Improvement in Specifications—Coke Output Curtailed.

Office of THE IRON TRADE REVIEW,
510 Park Building, Feb. 15.

Conditions surrounding the iron and steel industry in the Pittsburg district are more encouraging this week, and, while the trade generally believes that the present temporary lull will continue for the remainder of this month and in all liklihood will extend over part of March, developments of the past week are taken as an indication that all branches will share in the activity, which, makers say, is bound to follow.

With one or two exceptions, all branches of the trade are showing a slightly stronger tone, as compared with the previous week, both in the volume of new tonnage booked and in the manner in which consumers are specifying. Several days ago, certain branches showed a falling off in specifications, which, in some cases was affecting mill operations to some degree. Investigation shows that as a general proposition specifications this week are as heavy as at any time since the first of the year.

Steel makers now believe that the temporary lull will have a wholesome effect upon the steel industry later in the year. It has given them an opportunity to show some improvement in promised deliveries and to prepare for tonnage expected during the last six months of the year. The rail market, while far from satisfactory, is reported to be in better condition than at any time this year. The sheet market continues to be one of the most active branches. Premiums are still being offered for prompt deliveries. The tin plate market continues active. While there is comparatively little new tonnage in plates coming out, there is a large amount of business in sight. The pipe market shows some additional strength and is satisfactory to makers. It is known that there has been some shading of prices in wire products as well as in structural lines, but makers deny that there has been any general change in the current market quotations.

Specifications for steel bars and bar iron are slightly heavier and some new tonnage is being booked. In the semi-finished lines, little change is noted. A few makers who declined new business a month or so ago on account of the sold-up condition of their plants, are now in a position to accept small tonnage of sheet bars for prompt delivery. There appears to be little inquiry for semi-finished steel.

Considerable interest has been centered in the pig iron market on account of the purchase of 40,000 tons of Bessemer iron by the United States Steel Corporation. Despite the fact that in this instance the price of Bessemer iron was reduced from $19 to $18, sellers of basic and foundry pig iron are not inclined to lower their quotations. Some new inquiries for basic and foundry are coming out and several scattered sales of No. 2 foundry are noted.

Independent coke producers believe that by curtailing production they have checked the decline in prices. Production this week is being curtailed about 20 per cent.

Pig Iron.—As a result of the sale of 40,000 tons of Bessemer pig iron to the United States Steel Corporation, jointly, by W. P. Snyder & Co. and the Bessemer Pig Iron Association, the local pig iron market is showing a little more life. While the purchase by the Steel Corporation and the announcement that it now has a 30-day option on 50,000 tons more have not been followed by any big sales in this district, it is generally conceded that this sale is in a large measure responsible for the new inquiries coming out.

Three or four inquiries for Bessemer pig iron in small lots are now pending and furnace interests and middlemen believe that some new tonnage will develop shortly. Some of the consumers seem to think that the price paid by the Steel Corporation, $18, is attractive enough to bring out orders from independents who, it is believed, will be obliged to enter the market shortly.

Basic pig iron conditions remain practically unchanged and sellers are still quoting $17, valley, in the absence of any legitimate sales on which quotations might be based, despite the fact that the price of Bessemer has been reduced $1 as a result of the 40,000-ton purchase by the Steel Corporation. Makers of basic contend that the spread of $2 a ton between the two kinds of steel-making irons has been too wide and they are not inclined to lower their quotations on basic. It is not denied, however, that this price might be shaded on particularly desirable business. There is one inquiry for about 3,000 tons of basic pending in this market. As the prospective buyer has not bought any iron for some time, the inquiry is thought to be genuine.

Foundry pig iron is showing more activity at present than for some time. Several small sales, aggregating probably from 1,500 to 2,000 tons, have been made and several fairly large inquiries are pending. Most of the sales so far have been for small tonnage which went to regular buyers who failed to cover for their full requirements. Sellers generally are quoting $17, valley.

Malleable iron appears to be in little demand and very little new inquiry is coming out. A sale of about 500 tons of malleable to an eastern interest is noted, the price being given as $16.50. This is the only sale of malleable noted in this district, and on account of the small tonnage involved sellers are still quoting $17.90, Pittsburg. We quote:

Pig Iron Prices.

(Prompt Shipment.)

Bessemer, valley	$18.00
Bessemer, Pittsburg	18.90
Basic, valley	17.00
Basic, Pittsburg	17.90
No. 2 foundry, Pittsburg	17.90
Gray forge, Pittsburg	17.15
Malleable, Pittsburg	17.90

(First Quarter.)

Bessemer, valley	18.00
Bessemer, Pittsburg	18.90
Basic, valley	17.25
Basic, Pittsburg	18.15
No. 2 foundry, Pittsburg	18.15
Gray forge, Pittsburg	17.15
Malleable, Pittsburg	17.90

Ferro-Alloys.—Aside from a few scattered carload sales of ferro-manganese the ferro-alloy market is quiet. Inquiries for 50 per cent ferro-silicon in small lots are coming out and a few sales are being made on the basis of from $62.50 to $63.50, Pittsburg. Most of the consumers of ferro-alloys are well covered.

We quote ferro-manganese at $44 to $45, Baltimore, for immediate shipment or for first half, and from $45 to $45.50 for second half. The freight rate from Baltimore to Pittsburg is $2.30 per ton.

Fifty per cent ferro-silicon is quoted at $62.50 to $63.50, Pittsburg; domestic 12 per cent, $25.90; 11 per cent, $24.90; 10 per cent, $23.90, Pittsburg, for prompt, first quarter, and $1 advance for second quarter. The foreign grades are held at $1 or more a ton over domestic prices.

Plates.—The plate market continues quiet with little new business coming out, although there is a large tonnage involved in new work which is expected to come out shortly. Railroads are taking their cars contracted

for some time ago in fairly large numbers, and as a result specifications for plates are correspondingly heavy. Mill operations have not been affected by the temporary lull in this market. Makers apparently are satisfied with existing conditions. There are reports of price concessions on plates although there has been no change in the general market quotations. It is admitted that little, if any, tonnage is being offered at 1.60c. It is also stated that makers are not accepting business at prices as low as 1.50c, as intimated recently. Railroads are still holding back some of the back orders for cars which were to have been awarded during the first month of the year. Announcement is made that contracts for about 10,000 tons of plates, to be used in riveted pipe work at Portland, Oregon, will be awarded some time in March. It is also expected that contracts will be awarded for upwards of 600 tons to be used in similar work at Portland, Maine. Fairly heavy tonnage is involved in other work which is expected to be taken up in the near future. We quote the market as follows:

Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.55c to 1.60c. Extras are as follows, per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.20c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½ inch to and including 3-16 inch plate on thin edge, 0.10c; under 3-16 inch and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—Notwithstanding that there appears to be less activity in the sheet market as far as jobbers are concerned, this market continues to be one of the most active in the local iron and steel trade. It is pointed out that many of the big jobbers now have a normal supply on hand and they are not buying as heavily as a few months ago. Manufacturers, however, are specifying as freely as ever and are requesting makers to make shipments as soon as possible. While premiums are still being paid in some cases on blue annealed sheets and galvanized sheets, it is understood that only a few of the independents are accepting this business. Large consumers, who contracted for their requirements for the year ending June 30, now find that they will need greater tonnage than they contracted for and some of them are experiencing difficulty in obtaining prompt delivery on this business. Mills are still operating to capacity, and some users are requesting makers to open their books for delivery extending over the last half of the year. Present sheet prices, Pittsburg base, are as follows, with $1 a ton added as the delivered price in the Pittsburg district:

Blue annealed sheets, Nos. 3 to 8, 1.70c; Nos. 9 and 10, 1.75c; Nos. 11 and 12, 1.80c; Nos. 13 and 14, 1.85c; Nos. 15 and 16, 1.95c; box annealed sheets, Nos. 10 and 12, 2.05c; Nos. 13 and 14, 2.10c; Nos. 15 and 16, 2.15c; Nos. 17 to 21, 2.20c; Nos. 22 to 24, 2.25c; Nos. 25 and 26, 2.30c; Nos. 27, 2.35c; No. 28, 2.40c; No. 29, 2.45c; No. 30, 2.55c; galvanized sheets, Nos. 12 to 14, 2.50c to 2.55c; Nos. 15 and 16, 2.60c to 2.65c; Nos. 17 to 21, 2.75c; Nos. 22 to 24, 2.90c; Nos. 25 and 26, 3.10c; No. 27, 3.30c; No. 28, 3.50c; No. 29, 3.60c; No. 30, 3.85c; painted roofing sheets, $1.70 per square for No. 28 gage, 2½-inch corrugation, and galvanized roofing sheets, $3 per square for No. 28 gage, 2½-inch corrugation.

Tin Plate.—Specifications on tin plate contracts are satisfactory to makers, and practically the only change noted in this line is the increased shipments to the can manufacturers. The tonnage involved in early shipments to users, so far this year, exceeds that of corresponding periods in the past. Operating conditions remain unchanged, the output of most of the mills being sold ahead for some time. Officials of the Phillips Sheet & Tin Plate Co. advise that its new plant at Weirton, Hancock county, W. Va., will be started some time next week. The plant will contain ten hot mills and ten stands of cold rolls. The Jones & Laughlin Steel Co. is accepting new business for its Aliquippa tin plate plant for June delivery. It is reported that West Virginia interests are considering a proposition to be made to the American Sheet & Tin Plate Co. to purchase the LaBelle plant which has been idle for some time, but so far a direct proposition has not been made to the company. The leading interest is still operating 185 out of a serviceable capacity of 235 hot mills. The base price on tin plate, over which some premiums have been paid for desirable deliveries, is as follows:

Coke tinplate, 100-pound basis, 14 x 20, $3.60, f. o. b. mill, Pittsburg district.

Rails and Track Material.—Although the rail market is not as active as is usually expected at this season of the year, some of the railroads are showing a disposition to enter the market. Makers are not dissatisfied with the showing made so far this month, the volume of new business entered being heavier than for the same period in January. Several thousand tons of standards in small orders for immediate shipment are being entered regularly each week by the leading interest, which now has sufficient tonnage on its books to assure operation of its mills for several months at the present rate of production. Until a few weeks ago the outlook for the standard rail market was not very encouraging, but makers now feel confident that with the orders placed recently and the new business in sight, they will be in a comfortable position for some months. The light rail market continues to show considerable activity, total bookings for the week being in excess of the previous week, when approximately 3,500 tons were booked. This is due largely to extensions and betterments outlined by mining interests and other users of light rails. Track bolts appear to be in good demand, and in some instances premiums are still being paid for desirable deliveries. The activity in this line is due to the usual spring roadbed improvements and renewals on the part of the railroads. The demand for spikes is slightly heavier. We quote standard Bessemer rails as follows, the base price for open-hearth rails being $30, mill:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; light rails on base weight of 40 to 45 pounds, $28, the schedule on the other weights being irregular and subject to negotiations; angle splice bars for standard sections, 1.50c, Pittsburg; standard spikes, 1.75c to 1.80c, Pittsburg; hand spikes, 1.80c to 1.85c, Pittsburg; track bolts, 2.50c, Pittsburg.

Steel.—Little change is noted in the semi-finished steel market, although some makers, who for the last few months declined to take any additional tonnage on account of the sold-up condition of their plants, are now in a position to accept a small amount of new business. The market, taken as a whole, is quiet, users being well covered for their early needs and makers not being in a position to accept new tonnage. In some quarters, a slight falling off in sheet bar and billet specifica-

tions is noted. There is a fairly good inquiry for Bessemer sheet bars, but few sales are reported. Notwithstanding reports of alleged shading on Bessemer sheet bars, makers continue to ask from $28.50 to $29 at makers' mill and one or two sales at the latter figure are noted. Makers of semi-finished material generally are operating to capacity and have sufficient tonnage on their books to assure steady operation at their plants up to July 1. Consumers are asking that books be opened for deliveries extending over the last half of the year, but makers are not willing to adopt this policy. Premium prices for open-hearth billets are still being quoted.

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $27.50 to $28, Pittsburg, with the usual extras for size and analysis, and open-hearth rolling billets from $30 to $31, Pittsburg. Forging billets are quotable at $32 to $33, Pittsburg. Sheet and tin bars are quoted at $28.50 to $29.00 at makers' mill, located within the $1, Pittsburg, freight limits.

Hoops and Bands.—Deliveries to users of hoops and bands are more satisfactory than for some months because of a slight falling off in new business. Specifications continue satisfactory, and makers are pleased with the outlook. Price concessions in some districts are still reported on desirable business, although the 1.60c base on hoops is regarded as the minimum. We quote the present market as follows:

Hoops in carload lots, 1.60c to 1.65c; in less than carload lots, 1.70c to 1.75c; bands, 1.50c to 1.55c, base, with net extras as per standard steel.

Merchant Bars.—Makers of merchant bars report that inquiries for steel bars are heavier than last week. While the volume of new tonnage is not so heavy as a month or so ago, makers have enough business on their books for first quarter delivery to keep their plants running full time. The bar iron market also shows a firmer tone, although many of the railways which usually make heavy purchases about this time of the year have not placed their contracts as yet. Specifications against bar iron contracts are slightly heavier and there appears to be less shading of the general market quotations. Deliveries of both bar iron and steel bars are more satisfactory to users. Considerable new business in shafting is noted. We quote the market as follows:

Common iron bars, 1.70c to 1.75c, Pittsburg; Bessemer and open-hearth steel bars, 1.45c to 1.50c; plow and cultivator, 1.45c to 1.50c; channels, angles, zees, tees, under 3-inch, 1.45c to 1.50c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds, 0.15c advance; less than 1,000 pounds of a size, 0.35c advance. Cold rolled and ground shafting, 55 per cent in carloads and 50 per cent in less than carloads, delivered in base territory.

Planished and machine straightened tire is 1.70c base; iron finished tire under 1½ by 1½ inches, 1.65c, both plus net extra on tire card; iron finished tire, 1½ by ½ and over, 1.50c, plus net extra on the steel bar card.

On cold rolled strip steel, with 1½ inches and wider, and 0.100-inch and thicker, we quote base prices for 100 pounds, $3.35 on hard, and $3.60 on soft, except in carload lots of one size, where the price is lower.

Structural. — The structural steel market is reported by makers and fabricators, to be more encouraging than it has been for some time. Plans for a large portion of new spring work have been completed, and it is expected that actual construction will be started as soon as weather conditions permit. While the volume of business booked in this district during the last week is comparatively small, makers and fabricators have been advised that a number of the contracts now pending will be placed within the next week or ten days, despite the fact that some shading has been done in structural lines; and while some makers admit that very little business is being booked at 1.60c, they claim that 1.55c represents the market level, and only in a few instances is new tonnage being accepted at less than this figure. The Jones & Laughlin Steel Co. will furnish 1,200 tons to be used in the Northern Central Railway station at Baltimore, and will also furnish 800 tons for the new store to be built at Woodlawn, Pa., by the Pittsburg Mercantile Co., a subsidiary of the Jones & Laughlin Steel Co. Contracts for this building have been awarded to James L. Stuart, Pittsburg. Architects, who wish to compete in making plans for the new Allegheny county building, Pittsburg, have been advised that the competition will close April 15. The building will be 12 stories and will cost approximately $2,500,000. Plans for the proposed new bridge across the Ohio river at Parkersburg, W. Va., have been completed, and it is expected that bids for this work will be invited shortly. Some of the local railroads have completed plans for new structural work, which will require a fairly large amount of structural material, and it is expected that some of the contracts will be awarded before March 1. We quote shape prices, as follows:

Beams and channels, 15-inch and under, 1.55c to 1.60c; over 15 inches, 1.65c to 1.70c; zees, 1.55c to 1.60c; tees, 1.55c to 1.60c; angles, from 3 to 6 inches, 1.55c to 1.60c; over 6 inches, 1.55c to 1.70c; universal and sheared plates, 6¼ inches wide and wider, 1.55c to 1.60c.

Merchant Pipe.—Makers of tubular goods report that in addition to the contracts placed recently some good inquiries are coming out, and that the market taken as a whole is in a satisfactory condition. There has been very little spring buying so far, and it is not expected that this movement will start before March 1. The volume of business booked since Jan. 1 is in excess of orders received during the corresponding period of last year. Most of the inquiries now pending are thought to be genuine, and some large orders likely will be placed soon. No action has been taken, as yet, by the Arkansas Natural Gas Co. on its large order for pipe, which has been pending for some time, although it is expected that contracts will be awarded in the very near future. We quote the following official discounts in carload lots, subject to the usual discount to the largest buyers, merchant pipe, where specified, being furnished in from ⅛ to 6 inches, and in plugged and reamed lots:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
⅛ and ¼ inch.....	70	54	65	..
⅜ inch	71	57	66	52
½ inch	74	62	69	57
¾ to 6 inch.....	78	68	73	63
7 to 12 inch.....	72	57	67	52
13 to 15 inch.....	51½	..	..	..
PLUGGED AND REAMED.				
1 to 4 inch.....	76	66	71	61
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch.....	63	51	58	46
½ to 4 inch.....	70	58	65	53
4½ to 8 inch.....	66	54	61	49
9, 10, 11 and 12 inch	59	47	54	42
DOUBLE EXTRA STRONG PLAIN ENDS				
½ to 8 inch.....	59	48	54	43

Boiler Tubes.—Makers of boiler tubes express satisfaction over the manner in which new business and specifications are coming out, and it is expected that both merchant and locomotive buyers will enter the market shortly for additional tonnage on account of the spring work and the increased buying of locomotives by railroads. This market is satisfactory to both makers and consumers, as deliveries are a little easier.

	Steel.	Iron.
1 to 1½ inch	49	43
1¾ to 1¼ inch.....	61	43
2½ inch	63	48
2¾ to 5 inch.....	69	55
6 to 13 inch	60	43

2½ inch and smaller, over 18 feet, 10 per cent net extra.

2¾ inch and larger, over 22 feet, 10 per cent net extra.

To destinations east of the Mississippi river will be sold at delivered discount for carloads lowered by two points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburg.

Wire Products.—There has been considerable shading of prices of wire products for desirable business, but makers deny that there has been any general reduction in the market quotations.

While new tonnage is light, some fairly good orders are being booked. Jobbers, who usually purchase heavy stocks at this season of the year, are delaying their buying on account of weather conditions. Very little spring work has been started, and the jobbers are not disposed to fill their cellars and basements on account of the threatened floods. Spring buying is expected to start shortly and the outlook is considered promising. While it is known that price concessions have been made, it is claimed by independents that these reports have been exaggerated. We quote the market as follows, contracts with the jobbing trade being limited usually to 60 days:

Wire nails, jobbers' carload lots, $1.85; retailers' carload lots, $1.90; painted barb wire, jobbers' carload lots, $1.85; retailers' carload lots, $1.90; with 30c for galvanizing; plain wire to jobbers in carloads, $1.65, and to dealers in carloads, $1.70; polished staples, $1.85; galvanized staples, $2.15.

Wire Rods.—Little change is noted in the wire rod market. New buying is light and specifications are probably a little lighter than in January. Inquiries, involving fairly heavy tonnage, are noted and manufacturers are not dissatisfied, as their plants are being operated at about normal capacity. We quote the market at $33 and $34, Pittsburg, on Bessemer and open-hearth rods.

Coke.—Independent coke producers believe that they have checked the decline in prices, and, while the situation remains much the same as it has for the last week, it is believed in some quarters that a firmer market will prevail within the next ten days. Independent operators, this week, are curtailing production about 20 per cent. In some cases independents are operating only part of their ovens each day, while others are operating all their ovens five days instead of six. As a result, there is less surplus coke in the Connellsville region at present than at any time since Jan. 1. Consumption, according to official reports, is as heavy as ever, and independents believe that by curtailing production this week and next the situation will be materially changed and that prices should gradually advance. Some unusually low prices on both furnace and foundry coke have been quoted during the week. While it is known that standard Connellsville furnace coke has been sold below $2.20, ovens, independents emphatically deny sales have been made at $1.75, as reported. Despite the exceedingly low quotations named by some sellers, there has been little buying during the last ten days. The report that the United States Steel Corporation is in the market for a large tonnage of coke on account of the low prices is being revived but lacks confirmation. The failure of the coal operators and the wage scale committee of the United Mine Workers to make any progress in adjusting the wage scale for the coming year is causing some uneasiness among the coke producers. Some users of coke are asking for bids on coke to cover their requirements during the last half of the year. While actual sales have been made at very low figures, we quote standard Connellsville furnace coke for prompt shipment at from $2.25 to $2.35, ovens, and on contract from $2.30 to $2.40. On high grade Connellsville foundry coke we quote from $2.90 to $3, ovens, for prompt delivery. On contracts, we quote from $2.95 to $3.10. The Connellsville *Courier's* figures for the week ending Feb. 5 show 36,859 ovens active with an output of 474,203 tons, compared with 36,859 active ovens and a production of 474,496 tons the previous week.

Old Material.—There is little life in the old material market in the Pittsburg territory, prices showing a further decline in some grades. The prospect for a buying movement in the immediate future is not bright. Producers of scrap continue to offer large blocks of most grades to dealers who now have unusually large stocks on hand. Investigation shows that, on account of the heavy consumption during the last few months, consumers' stocks are gradually being depleted, although users appear to be well covered for their present needs. Except for the few scattered carloads which users are obliged to move, there is very little old material changing hands in this territory. Heavy melting scrap shows a further decline of 25 cents, the new quotation being from $17 to $17.50. Re-rolling rails can be bought for from $17.75 to $18.25. The price of old iron rails is quoted at from $18 to $18.50, a reduction of 50 cents. No. 1 wrought scrap can be had at from $18.50 to $19. While other grades are being offered at the prices in effect last week, no sales are being made. We quote, gross tons, delivered in the Pittsburg district, including Monessen, Sharon, Steubenville, Brackenridge and Follansbee, as follows:

Heavy melting scrap	$17.00 to 17.50
Rerolling rails	17.75 to 18.25
Bundled sheet scrap	15.00 to 15.50
Iron axles	27.00 to 27.50
Old iron rails	18.00 to 18.50
No. 1 wrought scrap	18.50 to 19.00
Old car wheels	17.00 to 17.50
Low phosphorus	21.50 to 22.00
Machine shop turnings	12.50 to 13.00
Cast borings	10.0 to 10.50
No. 1 cast scrap	16.50 to 17.00
Malleable	16.50 to 17.00
Stove plate	12.50 to 13.00

CHICAGO.

Pig Iron Market Weak—Some Activity in Finished Lines.

Office of THE IRON TRADE REVIEW,
1328 Monadnock Block, Feb. 15.

A rather mixed condition is presented in the iron and steel market, this week, in which pig iron is shown to be in a very weak state, and finished products not sharing in the weakness. In many of the finished lines there is quite a little activity in specifying, and some new business developing. In bar iron particularly, the mills are being pressed for delivery by agricultural implement makers, who continue to constitute the most active branch in the realm of manufactures. The plants of most of the implement makers are running overtime, and where the conditions permit, double turn. Inability to secure raw material fast enough is a serious handicap, as the end of the busy season for this industry is drawing near. Purchases of material for the next season's work probably will commence within a couple of months, as it will help to avoid the delay which has operated so seriously this year. In structurals, the Allouez Bay ore dock contract, for 9,000 tons of steel, has been closed, being the largest business booked for some time. Railroads are buying rails and supplies in a hand-to-mouth way, but the purchases are fairly well distributed, showing the general character of the buying. Some cutting of prices on wire and its products is reported, but the leading interest disclaims any participation in the practice. It is said, however, that interests not identified with the Steel Corporation have shaded prices $1 to $2 a ton. Sales of machinery are fair, some little railroad buying being reported, here and there. At the recent automobile show, held in this city, which closed last Saturday night, a remarkable number of sales of all classes of automobiles was made.

Pig Iron.—This is an "off" week in the pig iron market. Prices are off, and inquiry, except in isolated instances, certainly is not "on." Reports from furnace interests and their representatives, almost unanimously are of the same nature, namely, an almost entire absence of buying, as well as of inquiry. Now and then,

there is a request to hold shipments, but this arises, in some cases, from the accumulation of cars on track, during the snow and ice blockade, and melters cannot handle or dispose of so much iron at a time. One report stands out prominently from the almost universal complaint of dullness; this interest, which is one of the most prominent pig iron factors in this territory, reports quite a number of small inquiries, amounting, in the aggregate, to about 15,000 tons, about half of which is said to be malleable iron. This bright spot in the general gloom suggests the possibility of some buyers doing a little "gum-shoe" purchasing, in order to keep the fact of their being in the market from being known. Something of the sort was suggested in this report a couple of weeks ago, but it must be admitted that close purchasers do not usually adopt such tactics. The inquiry which a leading steel foundry interest recently put out for 5,000 tons of northern basic, has been withdrawn for the time being. Prices have been affected by the continued quietness in the market, and a reduction of half a dollar a ton has resulted. For prompt delivery, there is plenty of southern iron at $13.50, Birmingham, but it is stated that this price could not be done for any delivery later than February. It should be understood that the minimum price, in all our quotations below, is for prompt shipment, or, at latest, not longer deferred than the present month. The purchase, last week, by the Steel Corporation, of 40,000 tons of Bessemer iron, has not affected the Chicago pig iron market in the least. Of course this market is pre-eminently a foundry iron market, but some sympathetic effect naturally might be expected to result from such a large purchase, even of Bessemer iron. The statistical situation, as reflected in the blast furnace report for Feb. 1, seems not to have had the effect which a large decrease in production might produce. We quote:

Lake Superior charcoal	$19.00 to 19.50
Northern foundry No. 2	18.50 to 19.00
Southern foundry No. 2	17.85 to 18.35
Southern silveries, 5 per cent silicon	18.90 to 19.40
Jackson Co. silveries, 8 per cent.	22.40 to 22.90
Malleable Bessemer	18.50 to 19.00
Alabama basic	18.35 to 18.85

Billets.—Only small lots of billets have been sold in this market the past week, and conditions continue as this report has outlined for weeks. The market is hardly a quotable one, but the price is approximately on a basis of $35 or $36, Chicago, for open-hearth forging billets. Some makers have refused business at the top figure mentioned, not having any billets available for shipment in the near future.

Merchant Bars.—Mills are receiving heavy specifications on old contracts and will not need to worry over the present lull in buying which is reported from some quarters. A continuation of the lull for a month or two would not be an unmixed evil, as it would give manufacturers an opportunity to work out from under the load, since many of them have been booking orders representing a tonnage very much in excess of shipments. The western sales office of an eastern steel company did the largest business in its history last week, in merchant steel, a large part of the orders coming from makers of agricultural machinery. We quote:

Bar iron, 1.60c to 1.65c; hard steel bars, re-rolled, 1.60c to 1.65c; soft steel bars and bands and small shapes, 1.68c to 1.78c, base; hoops, 1.78c to 1.88c; planished or smooth finished tire steel, 1.88c to 1.93c; iron finish, up to 1½ by ½ inch, 1.83c base, tire card; iron finish, 1½ by ½ inch and larger, 1.68c, base, bar card; channels for solid rubber tires, ¾ to 1 inch, 2.18c, flat, and 1⅛ inches and larger, 2.08c, flat; smooth finished machinery steel, 1 inch and larger, 2.43c; flat sleigh shoe, 1.73c; toe calk steel, 2.23c; spring steel, 2.28c; crucible spring steel, 2.78c; tool steel, 7c to 9c, with higher prices for special grades. Quotations on shafting are 55 per cent off the list for carload lots, and 50 per cent off for less than carload lots, carload freight allowed to points in base territory.

On iron and steel bars from local stocks, we quote, as follows: Bar iron, 2c to 2.10c, base; soft steel bars, 1.90c to 2c per 100 pounds, base; soft steel hoops, 2.40c to 2.50c, full extras.

Structural Material.—A very good tonnage was placed on the books of fabricators the past week, and inquiries are out for an even larger amount. In fact, if this latter feature should suddenly take the shape of closed business, it would represent a volume of orders which would resemble very closely the strenuous movement in this line which almost swamped fabricators and mills a few months ago, and from which they are only beginning to free themselves. The contract for the ore docks, which the Great Northern Railroad is to built at Allouez Bay, Wis., has been let to the American Bridge Co. The amount required, as previously stated, will be 9,000 tons. The same fabricator secured a lift bridge on the Northern Pacific road, taking 440 tons, and during the past week booked orders from car builders for axles amounting to 1,200 tons. For the American National Bank building, at Austin, Texas, Bethlehem shapes have been specified, and the Chesapeake Iron Works, of Baltimore, was given the contract, involving 1,200 tons. The Mathers Hotel, at Denver, Colo., 200 tons, went to the Queen City Iron Works, of that city.

We quote mill prices for structural shapes, Chicago delivery, as follows:

Beams and channels, 15-inch and under, 1.78c to 1.88c. For extras see Pittsburg report.

Local store prices are as follows: All angles, 3 inches and larger, including 6 inches, $2 to $2.10 per 100 pounds; angles over 6 inches, $2.10 to $2.20 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $2 per 100 pounds, base; channels, 3 inches and larger, $2 per 100 pounds, base.

Rails and Track Supplies.—Considerable buying of standard steel rails, well distributed over a number of roads, is reported this week, together with satisfactory tonnage of spikes and bolts. The leading local interests made sales during the week of 12,000 tons Bessemer rails, no one sale among which was for any large amount. See Pittsburg report for prices on standard sections.

On light rails, Chicago delivery, we quote as follows: Light rails, 40 and 45-pound, $27; 30 and 35-pound, $27.75; 16, 20 and 25-pound, $28; 12-pound, $29.

Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; railroad spikes, 1.85c to 1.95c; smaller size spikes, 1.90c to 2c, base; track bolts with square nuts, 2.40c to 2.60c, base; with hexagon nuts, 2.55c to 2.75c.

Plates.—In view of the fact that during the latter months of last year mills booked a very heavy tonnage for delivery extending well into 1910, the amount of new business being received is very satisfactory, and specifications on contracts already in force are very heavy. Prices are being maintained at previous levels.

We quote, Chicago delivery, as follows: Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.78c to 1.88c. For extras see Pittsburg report.

Store quotations are without change as follows: Tank steel, ¼ inch and heavier, up to 72 inches wide, 2c to 2.10c; from 72 inches to 96 inches wide, 2.10c to 2.20c; 3-16 inch up to and including 60 inches wide, 2.10c to 2.20c; 72 inches, 2.35c to 2.45c; No. 8 up to 60 inches wide, 2.15c to 2.25c. Flange and head quality, 25c extra.

Sheets.—There is considerable pres-

sure on the mills for blue annealed sheets, on which purchasers are willing to pay a good premium, but in other lines the inquiry for sheets is hardly up to the mark which has been recorded for some little time. In comparison with previous weeks, the market might be considered rather lacking in strength, but there is no tendency to make concessions in prices.

For mill prices see Pittsburg report. Freight to Chicago, 18 cents.

We quote store prices at Chicago as follows: No. 10, 2.25c to 2.35c; No. 12, 2.30c to 2.40c; No. 14, 2.35c to 2.45c; No 16, 2.45c to 2.55c; Nos. 18-20, 2.80c to 2.90c; Nos. 22-24, 2.85c to 2.95c; No. 26, 2.90c to 3c; No. 27, 2.95c to 3.05c; No. 28, 3c to 3.10c; No. 30, 3.30c; galvanized sheets, Nos. 10 and 16, 3.20c to 3.30c; Nos. 18 and 20, 3.35c to 3.45c; Nos. 22 to 24, 3.50c to 3.60c; No. 26, 3.50c to 3.80c; No. 27, 3.90c to 4c; No. 28, 4.10c to 4.20c; No. 30, 4.50c to 4.60c.

Wire Products.—Numerous reports have been circulated as to reduction in the price of wire, which are denied on the part of officials of the leading interests, so far as the business of that interest is concerned. Inquiry tends to show that some cutting has been done, however, and it is thought that the concessions have been made by independent mills, ranging from $1 to $2 per ton. With the spring trade almost at hand, no serious cutting in prices is looked for for the reason that it is so unnecessary, as in a short time everybody will have all the business that can be handled, unless all indications are misleading.

We quote, Chicago delivery, as follows: Wire nails, jobbers' carload lots, $2.03; retailers' carload lots, $2.08; retailers' less than carload lots, $2.18; painted barb wire, jobbers' carload lots, $2.03; retailers' carload lots, $2.08; retailers' less than carload lots, $2.18; with 30c for galvanizing; plain wire to jobbers, carload lots, $1.83; staples, bright, $2.03.

Merchant Pipe and Tubes.—With the approach of spring the business in tubular goods begins to give promise of satisfactory expansion. The dull period of the winter months is wearing away and in a very few weeks at the farthest the normal conditions of the spring and summer months will be resumed. A report is current that a large contract for riveted steel and piping, amounting to 12,000 tons, is about to be placed in the west.

For mill discounts, see Pittsburg report.

We quote, out of store, as follows: Wrought steel pipe, black, ⅛-inch to ¼-inch, 68 per cent; ⅜-inch, 69 per cent; ½-inch, 72 per cent; ¾-inch to 6-inch, 76 per cent; 7-inch to 12-inch, 68 per cent. Iron pipe, about 6 points higher.

Lap-welded steel tubes, 2¾-inch to 5-inch, 60 to 62 per cent; charcoal iron tubes, 2¾-inch to 4-inch, 48 to 50 per cent, seamless steel tubes, 2¾-inch to 4-inch, 46 per cent.

Cast Iron Pipe.—The season for municipalities to look after their requirements for the laying of gas and water pipes is at hand, and inquiries are beginning to appear in the market. Duluth has closed with the United States Cast Iron Pipe & Foundry Co. for 2,000 tons of pipe, running from 4-inch to 20-inch, to be used in gas and water mains. The city of Duluth owns both the systems. Dayton, O., will have a letting on Feb. 18, for 500 tons, and Salt Lake City on the same date for its yearly supply of pipe. Small specifications are numerous as well as the larger contracts.

We quote as follows: 4-inch water pipe, $28.50; 6 to 16 inches, $27.50; larger sizes, $26.50; gas pipe, $1 a ton higher.

Old Materials.—A limited demand continues to be the feature in this market, with considerable weakness developing from the strain of large stocks in connection with little inquiry. Quotations on many of the lines show concessions from figures previously ruling. The Wabash road offered a small list of scrap, amounting to 600 tons, which closes Wednesday.

We quote, gross tons, as follows:

Old car wheels	$17.50 to 18.00
Old iron rails	18.00 to 18.50
Rerolling rails (4 ft. and over)	17.50 to 18.00
Old steel rails (2 ft. and under)	16.75 to 17.25
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	24.50 to 25.00
Frogs, switches and guards	15.00 to 15.50
Heavy melting steel	15.00 to 15.50
Shoveling steel	14.50 to 15.00

We quote, net tons, as follows:

No. 1 R. R. wrought	$14.25 to 14.75
No. 2 R. R. wrought	13.25 to 13.75
Arch bars and transoms	17.50 to 18.00
Knucklers, couplers and springs	14.00 to 14.50
Shafting	17.50 to 18.00
Iron car axles	21.50 to 22.00
Steel car axles	22.00 to 22.50
Locomotive tires	18.00 to 18.50
Dealers' forge	12.00 to 12.25
Pipes and flues	11.50 to 12.00
No. 1 cast, 150 lbs. and less	14.50 to 15.00
No. 1 busheling	12.25 to 12.75
No. 2 busheling	9.25 to 9.75
No. 1 boiler cut	11.25 to 11.75
Boiler punchings	16.50 to 17.00
Cast and mixed borings	7.25 to 7.75
Machine shop turnings	9.75 to 10.25
Railroad malleable	14.25 to 14.75
Agriculaural malleable	12.50 to 13.00
Stove plate and light cast scrap	12.25 to 12.75
Angle bars, splices, etc. (iron)	17.25 to 17.75
Angle bars, steel	15.00 to 15.25

CLEVELAND.

Allotment of the Bessemer Purchase —Pig Iron is Dull.

Office of THE IRON TRADE REVIEW, Browning Building, Feb. 15.

Iron Ore.—Buying of iron ore has almost come to a standstill. Owing to the uncertainties as to the demand for pig iron, furnaces are slow to make further purchases of ore. Eastern furnaces continue in their waiting attitude.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $5; Mesabi Bessemer, $4.75; old range non-Bessemer, $4.20; Mesabi non-Bessemer, $4.

Pig Iron.—At a meeting of the Bessemer Association held in Cleveland Saturday, it was decided to accept the Steel Corporation's offer to buy Bessemer pig iron at $18 valley, and to give the Corporation an option on 50,000 tons 30 days at the same price. Monday the allotment of pig iron was made, 25,000 tons going to the Association, and 15,000 tons to W. P. Snyder & Co. The delivery is to be in hand, April and May. It is expected that the Steel Corporation will place another order before long, and that there will be some buying by independent interests. With the exception of the Steel Corporation purchase, the pig iron market has been very quiet and so continues. There is no disposition to reduce quotations on basic and foundry pig irons $1 per ton as has been done on Bessemer, and the feeling is that the spread in favor of Bessemer has been too great, and that not less than $17 valley ought to be quoted on basic and malleable and No. 2 foundry pig iron. Southern iron is weak. We quote delivered in Cleveland as follows:

No. 1 foundry	$17.75 to 18.25
No. 2 foundry	17.50 to 17.75
No. 2 Southern	18.10 to 18.35
Gray forge	17.15
Bessemer	18.90
Lake Superior charcoal	19.50
Jackson Co. 8 per cent silvery	21.55

Coke.—The policy of curtailing production has been continued, but there is very little life in the market. We note one sale of 25 tons of foundry coke at $2.90, and on this grade we quote $2.90 to $3 for prompt delivery, and $3 for first half. For prompt delivery we quote Connellsville furnace coke $2.20 to $2.40, and for first half $2.40 to $2.50.

Finished Materials.—While there has recently been considerable decrease in new orders and specifications, mill

activity continues unabated, and the fact that jobbers are doing such a large business from store clearly indicates that the demand for material is strong and active. While somewhat better deliveries are given on a few products, many mills are making comparatively little progress in catching up on deliveries. The extreme prosperity of the nut and bolt business at present convinces the makers of these products that general conditions are sound. Makers of specialties are enjoying good business. Contracts in shapes and plates are being taken by some interests for third quarter at 1.55c Pittsburg.

Old Material.—The increasing weakness has resulted in a number of declines. Heavy melting steel is now quoted at $15 to $15.50; busheling is fifty cents lower at $13.50 to $14; turnings and drillings are also off about 50 cents, while railroad malleable is now quoted a dollar lower at $16 to $16.50. We quote, gross tons, f. o. b. Cleveland:

Old iron rails	$18.00 to 18.50
Old steel rails (under 6 feet)	17.00 to 17.50
Old car wheels	17.00 to 17.50
Old steel boiler plate	14.00 to 14.50
Malleable iron (railroad)	16.00 to 16.50
Steel axles	20.00 to 20.50
Malleable iron (agricultural)	14.50 to 15.00
Heavy steel	15.00 to 15.50
Country mixed steel	13.50 to 14.00

We quote, net tons, as follows:

No. 1 R. R. wrought	$16.00 to 16.50
No. 1 busheling	13.50 to 14.00
No. 1 machine cast	15.00 to 15.50
Axle turnings	11.00 to 12.00
Machine shop turnings	9.50 to 10.00
Grate bars	12.00 to 12.50
Pipes and flues	11.50 to 12.00
Tank iron	11.00 to 11.50
Sheet iron	6.50 to 7.00
Wrought drilling	9.50 to 10.00
Stove plate	13.00 to 13.50
Cast borings	8.00 to 8.50

CINCINNATI.

Consumers Appear Well Covered on Pig Iron—Prices Weaker.

Office of THE IRON TRADE REVIEW,
N. E. cor. Fourth and Elm Sts., Feb. 15.

Pig Iron.—The market is exceedingly quiet and dull. As a matter of fact, there is so little doing, that it is a very difficult matter to portray the pig iron situation as it actually exists today. A very large percentage of consumers have all the iron they require to carry them far into the summer, and are therefore taking little interest in the situation. Inquiry is at low ebb, and what small tonnage is being disposed of, is due rather to the activity of selling agencies than to any pressing need of consumers. Prices are a shade weaker, and appear to be more or less unstable. Southern foundry, while quotable at $14.00 Birmingham, is weak, and it is generally conceded by selling agents that inquiry for any considerable tonnage would develop a figure at least 25 cents below the prevailing market prices. This also appears to be substantially true as to northern iron, and it is morally certain that $17 could be shaded on any desirable tonnage. There is but one inquiry of any size recorded, and that is for about 6,000 tons for a pump company for eastern delivery. Demand for malleable grades is a little less active, as most of the large consumers have covered for early requirements. Local foundries have quite a little iron piled on yards and will probably not have to buy further before the latter part of June or July. We quote for any delivery during the year, based on freight rates of $3.25 from Birmingham, and $1.20 from Ironton, as follows:

Southern foundry No. 1	$17.75
Southern foundry No. 2	17.25
Southern foundry No. 3	16.75
Southern foundry No. 4	16.75
Southern No. 1 soft	17.75
Southern No. 2 soft	17.25
Southern gray forge	16.50
Northern No. 1 foundry	18.70
Northern No. 2 foundry	18.20
Northern No. 3 foundry	17.70
Jackson county 6 per cent silicon	20.20
Jackson county 8 per cent silicon	21.20
Jackson county 10 per cent silicon	22.20

A representative of one of the large pipe interests was in the city yesterday, it is said, on the lookout for anything in the way of iron that might be desirable as to quality and price. He was offered 7,000 tons or a part thereof of a speculative lot of Southern No. 2 foundry and No. 2 soft, but as he was unwilling to pay more than $13.00, there was no sale made. It is intimated, however, that he bought 1,000 tons or more of another lot, but at what figure is not definitely known. It is reported that another large pipe making plant had already submitted an offer of $12.75 for this lot of iron, which was declined.

Coke.—The market is inactive and demand is quiet. New contracts are coming forward slowly, consumers being fairly well covered for several months to come. Production in the Connellsville district has fallen off somewhat, owing to the banking of a number of ovens and a reduction of working days of others. Shipments are said to be fairly regular in movement, the railroads showing some improvement in handling consignments. Prices are easy and weak and in the leading coke producing districts are as follows:

	Prompt shipment.	First half 1910.
Connellsville District:		
Foundry coke	$2.75 to 2.90	$2.90 to 3.15
Furnace coke	2.25 to 2.50	2.50 to 2.75
Wise county district:		
Foundry coke	2.75 to 3.00	3.00 to 3.25
Furnace coke	2.10 to 2.25	*Sliding [scale basis.
Pocahontas district:		
Foundry coke	2.75 to 2.90	2.85 to 3.10
Furnace, coke	2.50 to 2.75	2.75
New River:		
Foundry coke	2.75 to 3.00	2.90 to 3.25
Furnace coke	2.25 to 2.50	2.35 to 2.50

*Sliding scale basis means $1.60 for coke based on $9, Birmingham, for pig iron, with an advance of 16⅔ per cent of the amount over $9 at which pig iron is quoted. This is the usual basis. Other forms of sliding contracts are also made.

Finished Material.—New specifications are not coming forward in a very satisfactory manner, and demand is very quiet. The mills are showing little improvement in handling delayed deliveries and are as far behind as ever. Prices are said to be unchanged, yet do not appear to be strong and firm. Steel bars and small shapes sold on steel bar card are quotable at 1.50c base, Pittsburg, and plates and structural 1.60c net, Pittsburg.

Old Material.—There appears to be no change for the better and the scrap market continues weak and absolutely featureless. Dealers say that they can dispose of their stocks if they are willing to make the necessary concessions, but there is an entire absence of any life in the market. Prices are irregular and fluctuating.

We quote dealers' prices as follows:

No. 1 railroad wrought, net tons	$14.00 to 14.50
No. 1 machinery, net tons	13.50 to 14.00
No. 1 busheling, net tons	12.00 to 13.00
Old iron rails, gross tons	18.00 to 18.50
Old steel rails (rerolling), gross tons	17.00 to 17.50
Old short lengths, gross tons	15.00 to 16.00
Old iron axles, net tons	19.00 to 19.50
Heavy melting scrap, gross tons	14.50 to 15.00
Stove plate, net tons	10.00 to 10.50
Heavy turnings, net	9.50 to 10.00
Cast borings, net tons	7.50 to 8.00
Car wheels	15.50 to 16.00
Grate bars	12.00 to 12.50

PHILADELPHIA.

Pig Iron Market Controlled by Buyers—Varying Conditions.

Feb. 15.

Pig Iron.—The market continues practically in the hands of the buyers and with current activity limited to only a moderate tonnage, the situation does not display much strength. Conditions at best are heavy and consumers, in a comfortable position for their pressing needs, are slow in anticipating the future in their purchases any more than they have already done. Some encouragement is to be found in the fact that shipments are going forward regularly with practically no suspensions and the current melt appears well sustained. One new inquiry is a little more promising, but this development is not marked. Prices are nominally stationary, but concessions have been obtained in recent sales and the extent of this shading is largely a matter of single negotiation. Foundry buyers are contracting in a desultory fashion, sales being confined to small lots, principally for first half

shipment, although some business has been done for the third quarter and last half. Very little new Virginia business is being taken in this territory, but the $15.50 furnace price is being met generally, by makers who were not parties to the original cut. In some cases, lower has been done. The Eastern Pennsylvania furnace situation is unchanged. The nominal market for No. 2X remains $19, delivered, but $18.75 and in extreme cases $18.50, is being done. The puddling mills apparently are not taking much new business and forge is stagnant. The pipe companies are buying in their usual quantities. Some charcoal iron selling is reported. Basic sellers are in a comfortable position at present as well as the leading buyers of the district for first half shipment. There has been some buying into the third quarter, but this has not been general. The one interest which has not covered as heavily as some of the other users, is reported to have taken an additional 2,500 tons for March this week. The basic price remains $18.50 delivered Philadelphia and this is understood to have been slightly shaded recently. Little new low phosphorus tonnage is moving. A recent sale of 600 tons upon a basis of $22.75 delivered Philadelphia is noted. The furnace of the Tidewater Steel Co. at Chester, Pa., which was recently disabled by fire, is expected to resume shortly. We quote for Philadelphia delivery first half shipment as follows:

No. 1X foundry	$19.00 to 19.50
No. 2X foundry	18.50 to 19.00
No. 2 plain	18.00 to 18.50
Standard gray forge	17.00 to 17.25
Basic	18.50 to 18.75
Low Phosphorus	22.75 to 23.25
No. 2 Birmingham	18.50
No. 2X Virginia	18.50 to 19.00
No. 2 plain Virginia	18.00 to 18.50

Ferro Manganese.—Dullness rules in the ferro-alloy market and lower prices are being made. A sale of 100 tons of ferro-manganese for the next eight months delivery at about $43.50 seaboard is reported. Another buyer recently took about 250 tons for forward shipment at about the same terms. The market is quotable at from $43.50 to $44 seaboard. Fifty per cent ferro silicon is lifeless and rules about $60 to $61 seaboard.

Coke.—Conditions as reflected by offerings in the east are very weak. There is no contract market on furnace coke, but guaranteed spot material has been tendered down to $2.10 ovens, to the consuming trade. Good foundry coke has been sold around $2.90 ovens.

Finished Material.—New inquiry is light in the finished situation and buyers show considerable uncertainty as to the future. The attitude of the railroads continues one of backwardness in buying and actual rail and car inquiry is coming out slowly. The Baltimore & Ohio however is an apparent exception to this rule and is taking steps towards the purchase of additional equipment which will include 120 Mallet locomotives. Eastern shape makers are not meeting the reported 1.50c Pittsburg price, but some protections on pending business in Eastern territory upon this basis at 1.65c Philadelphia are understood to have been made by Western mills. Shape deliveries range from three to six weeks. Two of the leading plate makers are sold up for 60 to 90 days, but eastern mills can make very prompt shipment. Steel bar specifications are good and deliveries are not improving. The Jones & Laughlin Steel Co. is now booking business against its new tin plate mill at Aliquippa, Pa. which will start in April, but no deliveries before June 1 are being promised. The general finished situation is not without some favorable reports. One large maker of finished lines booked the largest aggregate of new business in January since the month of October. Some fair-sized structural lettings are being made. The Richmond, Va., viaduct, 1,700 tons went to Lauer & Harper of Baltimore. The First National Bank building of Washington, D. C., will take 200 tons of Bethlehem sections. Bids went in this week upon the Fairmount Hotel, this city, about 1,500 tons. The United States government has taken bids upon two colliers, which will require 1,100 tons and it is expected an award will shortly be made upon the 1,000 tons for the naval hospitals at Providence, Chelsea and Newport, for which the Noel Construction Co., Baltimore, has the general contract. Bids go in on the Hoboken, N. J., high school March 4. Several small apartment jobs in this city are in sight. The outlook is for considerable work in Baltimore. No formal award has been made on the Pennsylvania train-sheds there upon which bids were just taken. Several apartments and a 300-ton bridge are near at hand as well as definite action upon the Emerson Hotel project. We quote the following on finished material for Philadelphia delivery:

Structural shapes, 1.65c to 1.75c; plates, 1.65c to 1.75c; steel bars, 1.60c to 1.65c; bar iron, 1.70c to 1.80c; open-hearth billets, $30.

Old Material.—A very dull condition exists in the scrap market and about the only trading is being done by middlemen who are covering against short sales. These are disclosing a weaker condition of prices, generally. The buying of foreign scrap for import has been checked by the poor market at tidewater and some material engaged in the United Kingdom some time ago has been resold to domestic users without loss. The announcement of an award of the Panama canal scrap by the government has aroused considerable interest in the market. We quote gross tons delivered in Philadelphia territory as follows:

Old steel rails (rerolling)	$18.00 to 18.50
Heavy melting steel	16.75 to 17.25
Old car wheels	17.00 to 17.50
Old iron car axles	27.00 to 28.00
Old steel car axles	23.00 to 24.00
No. 1 railroad wrought	18.50 to 19.00
Wrought pipe	16.25 to 16.75
Cast borings	11.25 to 11.75
Wrought turnings	13.50 to 14.00
Heavy cast scrap	16.50 to 17.00
Railroad malleable	16.50 to 17.00
Stove plate	13.00 to 13.50

BUFFALO.

Softening of Prices is Following on Heels of Pig Iron Lull.

Office of THE IRON TRADE REVIEW,
932 Ellicott Square, Feb. 15.

Pig Iron.—The market rules quiet with a tendency toward mellow prices in foundry grades. There is a wider spread in quotations on No. 1X and No. 2X foundry; the minimum price quoted today being 25c below the ruling price of the past few weeks. No. 3X may be had in some cases for $16.75 to $17.00 at furnace. Inquiries for heavy tonnage are not numerous, but there have been a few recent inquiries from Eastern interests who say they are looking for 4,000 to 5,000 tons. Their requirements call chiefly for high silicon iron. Sales for the past week have not been heavy. The market seems to be passing through what is generally believed to be a temporary lull. Pig iron held in stock by certain firms dealing in old material is said to have been offered in this market at slightly reduced prices. Shipments continue moving out very freely.

In considering the quotations offered below, it should be borne in mind that all the interests here are not selling at figures as low as those given. To include the varied schedules it would be necessary to quote with a much greater spread in prices. One interest today was quoting $17.50 to $18.00 on No. 2X foundry and has been selling considerable tonnage at such prices. It is apparent at this point, that no iron may be had at $17, furnace, for last half delivery unless it might be gray forge, which, it is

said, might be placed at $16.75 furnace. We quote, at furnace f. o. b. Buffalo, as follows:

No. 1X foundry	$17.50 to 18.00
No. 2X foundry	17.00 to 17.50
No. 2 plain	17.00 to 17.25
No. 3 foundry	16.75 to 17.00
Gray forge	16.75 to 17.00
Malleable	17.50 to 17.75
Basic	18.00 to 18.50
Charcoal	20.00 to 21.00

Finished Material.—Specifications are not coming out freely and prospects for large tonnage are scarce this week. The most important recent closing was the contract given Feb. 12 by the King Sewing Machine Co., of Buffalo, to the McClintic-Marshall Co., of Pittsburg, which will fabricate the steel and erect the new plant for the Buffalo enterprise. The contract for erecting and furnishing steel for the Dunn-Salmon Co.'s proposed office building in Syracuse, N. Y., has gone to the Syracuse Bridge Co. This contract includes 300 tons Bethlehem shapes and 125 tons standard shapes. The Brown-Lipe-Chapin Co., of Syracuse, has decided to build a large manufacturing plant, using re-inforced concrete. About 500 tons re-inforcing bars will be required. Specifications are not out but will be shortly. The mill interests are quoting as before on bars and shapes and plates.

Old Material.—There has been practically no change in the local scrap market and the mellow prices in the east have had no material effect on the Buffalo market. The demand is still light and the firms controlling the local market are holding tonnage for better conditions.

We quote, gross tons, f. o. b. Buffalo, as follows:

Heavy melting steel	$16.50 to 17.00
No. 1 railroad wrought scrap	18.00 to 18.50
No. 1 railroad and machine cast scrap	16.50 to 17.00
Old steel axles	21.00 to 21.50
Iron axles	26.00 to 26.50
Car wheels	18.00 to 18.50
Railroad malleable scrap	16.50 to 17.00
Machine shop turnings	11.25 to 11.75
Cast iron borings	9.25 to 9.75
Low phosphorus steel scrap	20.00 to 21.00
Old iron rails	19.00 to 20.00
Tank iron	13.50 to 14.00
Sheet iron	9.00 to 9.50
Stove plate	13.50 to 14.00
Pipe and flues	13.50 to 14.00
Grate bars	12.00 to 12.50
Boiler plate	14.00 to 14.50

ST. LOUIS.

Uncertainty as to Whether Large Inquiries Will Result in Business.

Feb. 14.

Pig Iron.—Quite a number of orders were placed last week for pig iron in lots of from 100 to 200 tons for shipment over the second quarter; there are a number of inquiries out in the St. Louis territory for second quarter and for immediate delivery, and the tentative inquiries for something like 30,000 tons that have been in the market for several weeks, have not been withdrawn. Whether these inquirers are really in the market to cover their requirements, or merely to feel conditions and place orders if a satisfactory price is made, is problematical; however, many St. Louis agents consider the inquiries as bona fide.

Southern No. 2 iron is reported firm at $14, Birmingham; northern at $17 to $17.50, Ironton. Local agents are firm in their belief that trade will brighten up in the near future. Our quotations delivered, to which the Birmingham freight of $3.75 has been added, follow:

No. 1 foundry	$ 18.25
No. 2 foundry	17.75
No. 3 foundry	17.25
No. 4 foundry	16.75

Coke.—There is nothing stirring in the coke market, with prices remaining as follows: Connellsville 72-hour foundry, $3 to $3.25; Connellsville, 48-hour furnace, $2.25 to $2.35; Virginia 72-hour foundry, $3 to $3.25; Virginia 48-hour furnace, $2.25 to $2.35, f. o. b. ovens, in each instance. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Finished Material.—Some impetus has been given to the market by the determination of the Mississippi Valley Transportation Co. to build a line of steel boats to navigate the Mississippi river from St. Louis to New Orleans, but some disappointment has been caused by the announcement by the directors of the new National Bank of Commerce building, an 18-story structure at Broadway and Pine street, that they would not double the size of the building.

Old Material.—Quotations on scrap iron remain as follows:

Old car wheels	$17.00 to 17.50
Old iron rails	19.00 to 20.00
Rerolling rails (4 ft. nad over)	16.75 to 17.25
Old steel rails e(2 ft. and under)	16.50 to 1.00
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	24.50 to 25.00
Frogs, switches and guards	15.50 to 16.00
Heavy melting steel	15.50 to 16.00
Shoveling steel	14.00 to 14.50

We quote, net tons, as follows:

No. 1 R. R. wrough	$14.50 to 15.00
No. 2 R. R. wrought	13.50 to 14.00
Arch bars and transoms	17.50 to 18.00
Knuckles, couplers and springs	15.00 to 15.50
Shafting	17.00 to 17.50
Iron car axles	20.00 to 21.00
Steel car axles	20.00 to 21.00
Locomotive tires	18.00 to 18.50
No. 1 country wrought	12.25 to 12.75
Pipes and flues	11.75 to 12.00
No. 1 cast 150 lbs. and less	14.00 to 14.50
No. 1 busheling	13.00 to 13.50
No. 2 busheling	9.75 to 10.25
No. 1 boiler cut	11.50 to 12.00
Boiler punchings	13.00 to 14.00
Cast and mixed borings	7.50 to 8.00
Machine shop turnings	10.00 to 10.50
Railroad malleable	13.25 to 13.75
Agricultural malleable	11.50 to 12.00
Stove plate and light cast scrap	11.50 to 12.50
Angle bars, splices, etc. (iron)	17.25 to 17.75
Angle bars, steel	15.50 to 16.00

BIRMINGHAM, ALA.

Fair Trade for Week in Small Lots of Pig Iron.

Feb. 14.

Trading in pig iron the past week has been fairly good, although there has been an absence of sales in round tonnage lots. The bulk of the business transacted covered orders for 50 and 100-ton lots. One interest reports having sold a total of 800 or 900 tons, the base price being $14 per ton, furnace. It is possible, however, that this price has been shaded in a number of instances from 25c to 50c per ton. On the other hand, quite a few of the producing interests are asking $14.50 per ton base for delivery through the third quarter of the year. As far as can be learned, sellers are not making any great effort to induce buyers to take on business this far ahead, and certainly are offering no inducements in the way of concession in prices. It is a fact that quite a number of buyers have not yet covered themselves for the first half of 1910, yet there is a strong disposition on their part to hold off, thinking probably there is a good chance for prices to be beaten down to a lower level. It is also a fact that many buyers covered their wants through the first half when prices were even lower than at present. There is a tremendous melt reported at the plants of the different manufacturing concerns in the south, especially the pipe plants. Already the decrease in production is being felt in the district. Consumers are taking their iron right along, and practically nothing is being stocked. Of course, the middle man's iron was bought some time ago for the purpose of speculating; but since it was not turned loose to any considerable extent while the higher base price prevailed, it is not reasonable to suppose that it will be unloaded at present low prices—at least unduly so. Southern charcoal iron has been held firmly at $22 to $22.50 per ton at the furnace for some months past. The most important southern charcoal iron factor is practically out of the market with its product at the present time.

Cast Iron Pipe.—Between 10,000 or 12,000 tons of water pipe were sold the past week, most of which is to be shipped into Illinois and Michigan territory,—principally to Chicago, Duluth and Detroit. Local plants report satisfactory orders in hand, and there has been no occasion for cessation of work at the different plants. During the latter part of the week some extremely cold weather set in—felt more keen-

ly in the east and middle west—which, of course, interferes with pipe laying. There has been no change in prices since last report, but it is understood that when necessary, in order to meet certain conditions, manufacturers are in position to do some shading by reason of reduction in cost of raw material. Following prices are quoted, per net ton, f. o. b. cars here: 4 to 6-in., $24.00; 8 to 12 in., $22; over 12 in., average of $20.00, with a dollar a ton extra for gas pipe.

Old Material.—There have been no changes in this market. Dealers continue to stock material, as well as ship a car now and then. No material change is looked for until there shall have been a decided reaction in the pig iron market. Following prices are quoted, per gross ton here:

Old iron rails	$15.50 to 16.00
Old steel axles	17.50 to 18.00
Old iron axles	19.50 to 20.00
No. 1 railroad wrought	14.00 to 14.50
No. 2 railroad wrought	12.00 to 12.50
Dealers' wrought	12.00 to 12.50
Old steel rails	12.50 to 13.00
No. 1 machinery	12.50 to 13.00
No. 1 steel	13.00 to 13.50
Light castings, stove plate	9.50 to 10.00
Cast borings	6.00 to 6.50
Old standard car wheels	13.50 to 14.00

SEATTLE.

Foundry Trade Improving—Pig Iron Prices Well Maintained.

Office of THE IRON TRADE REVIEW,
302 Pioneer Bldg., Feb. 11.

Smooth conditions, in general very similar to those prevailing at the time of the last report characterize the north Pacific coast iron market. The temper of the foundry trade is improving. Uniformly good mild weather is encouraging distribution, but the trade in sheets and bars is slackening. The Everett Gas Co., Everett, Wash., is making plans for considerable extensions, particularly in the residence districts, and is expected to be in the market for a considerable tonnage of gas pipe in the smaller sizes. Heavy building operations in the northwest are improving the demand for structural materials. About 6,000 tons of steel, equally divided between reinforcing material and structural shapes, are involved in building projects recently announced. The Yukon Investment Co., Seattle, will erect a six-story building at Third and James streets, and L. C. Smith, of Syracuse, N. Y., will erect an 18-story steel building in Seattle this spring.

Pig Iron.—The demand is steady and the market is exhibiting considerable strength. Some very creditable tonnages, for this market, have been recently disposed of without difficulty. A cargo of 7,600 tons of Han Yang, Chinese, iron sold rapidly for $23, ex-ship. All the conditions surrounding the market, English prices, charter quotations and the outlook for increased local demand, are contributing to a strongly intrenched position and price concessions are out of the question. Another important factor in the pig iron situation is the high price of scrap, which is forcing foundrymen to turn to the cheaper grades of pig iron for relief. Considerable tonnages of Chinese and Doncaster are being disposed of by virtue of the high prices of scrap. We quote, gross tons, as follows:

No. 1, English Jarrow, spot	$24.00 to 24.50
No. 1, Chinese, Han Yang, spot	23.00 to 23.50
Glengarnock, Scotch, to arrive June-July	24.50 to 25.00
No. 1 English, Jarrow, to arrive June-July	23.50 to 24.00
English, Doncaster, spot	23.00
No. 1 English, Jarrow and Cleveland, to arrive March	24.00
Southern No. 2, domestic	24.75 to 25.25

Merchant Iron.—The heavy buying which characterized the past month has fallen off to some extent, although weather conditions are still very favorable for distribution. Some shading on both iron and steel bars is noted, for which the importation of foreign material is held responsible. The announcement of the early construction of several large concrete buildings has stimulated the reinforcing trade. We quote, base prices, f. o. b. Seattle, as follows: Common iron bars, $2.30; soft steel bars, $2.50; machinery steel, $2.85; Norway iron, $3.75; angles, channels, beams and tees, under 3 inches, $2.75 to $2.80.

Sheets.—The trade is still fairly active, although not as bustling as it was during most of last month. Galvanized sheets continue to lead in tonnage sold. We quote as follows, f. o. b. Seattle: Blue annealed sheets, No. 12, 3.30c; No. 14, 3.35c; No. 16, 3.45c; No. 18, 3.90c; Nos. 22 to 24, 3.95c; No. 28, 4.10c; galvanized sheets, Nos. 12 to 14, 4.10c; No. 16, 4.20c; Nos. 18 to 20, 4.50c; Nos. 22 to 24, 4.65c No. 26, 4.85c; No. 28, 5.35c; No. 30, 5.95c.

Old Material.—Some odd lots of second grade cast scrap have sold recently at prices ranging from $15.50 to $17, but in general the tone of the scrap market is exceptionally strong. The outlying demand is good and only small amounts of country scrap are finding their way to the cities. The high price of foundry scrap is causing consumers to turn to the lower grades of pig iron for relief and also to increase the consumption of steel scrap wherever possible. It is understood that a large proportion of the initial purchases of steel scrap by the Western Steel Corporation for its Irondale plant will be made in the San Francisco market.

Foundry scrap, No. 1 grade	$19.00 to 20.00
Foundry scrap, No. 2 grade	15.50 to 17.00
Old car wheels	16.00 to 17.00
Railroad wrought	10.00 to 11.00
Miscellaneous steel scrap	5.00 to 9.00

BRITISH IRON MARKET.

Decided Lull in Pig Iron, but Fnished Material Advances.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, England, Feb. 2.

The end of the week finds the pig iron market under the influence of a decided lull, which has brought down prices rather materially. Yesterday Cleveland iron fell to 51s ½d ($12.48) cash, with 51s 9d ($12.66) three months. The fall was largely due to the action of speculators, a number of warrant holders being disturbed by the less satisfactory American reports and rushing on to the market to get rid of their holdings. The same condition of things prevails in Manchester, where Derbyshire iron is inclined to fall, but is maintained almost solely by the dearness of fuel. Shrewd observers anticipate another forward movement in pig iron shortly, partly because the price of ore is rising. In North Staffordshire, furnace mine has been raised 1s 6d per ton, which must add from 2s 3d to 3s per ton to the cost of pig iron production according to quality. Advances have also taken place in the North of England, and others are likely. A good sign is the steadiness of Cleveland stocks, which yesterday were 399,599 tons. The increase has apparently been arrested for the time being. In the hematite market, great firmness prevails, and at Barrow Bessemer prices are quoted at 67s 6d ($16.52). Prices would probably be higher but for the fact that the coke market has eased somewhat, and there are now ample supplies; but smelters complain that with present prices of ores and materials the selling figure is unprofitable. Practically all makers decline to book business beyond the middle of the year.

NEW YORK.

Leading Pump Interest Inquires for Pig Iron—Structural Contracts.

Office of THE IRON TRADE REVIEW,
Room 1005, No. 90 West St., Feb. 15.

Iron Ore.—The difficulty in obtaining boats for bringing in the foreign ore that has been bought, appears likely to become a factor of importance in the eastern situation. On account of

the less promising export movement from this country, foreign vessels are reluctant to undertake ore cargoes, unless at attractive rates and are directing their attention to scattered ports abroad. The foreign ore markets also appear more active for local consumption. The domestic ore situation in the east shows no change. Owing to the severity of the winter in the east and to other conditions, suspensions of shipments from mines to furnaces are still being requested. This is due in a measure to the fact that the eastern furnaces have probably had to continuously handle a greater tonnage of ore upon their yards this year than ever before, owing to the steady shipments being made throughout the winter. Some ore is being stocked at mines. There is little selling activity.

Pig Iron.—The International Steam Pump Co. has entered the market for a total of 6,100 tons of foundry grades for delivery at Buffalo, Holyoke and Harrison, N. J., plant. The bulk of the tonnage is for the Harrison works, while about 1,000 tons will go to Buffalo. Various deliveries are specified, but most of the iron is to be shipped this half. Beyond this inquiry, there have been no developments of note in the market from the buyers' standpoint, and general conditions are quite dull. The usual scattered tonnage in small lots is going under contract, but consumers are inclined to go slow with their purchases, and are not viewing the recent concessions made with much reassurance. The Virginia situation is still quiet and while $15.50 is the asking price of those makers who are desirous of selling, the $15.25 furnace price is becoming more open. Only a moderate amount of this iron for New England is now being closed. It is reported that Buffalo furnaces will go down to $16.75 for New England shipment where necessary, to hold their customers against the Virginia invasion, which has been favored by the recent 25-cent reduction in freights to that territory. Some selling of low phosphorus iron in this territory for early shipment has been done this week upon a basis of about $21, eastern Pennsylvania furnace. About 500 tons of Lebanon grades have also been disposed of at from $19 to $20, furnace. Forge users are showing no interest in the market. On No. 2X iron from eastern Pennsylvania, the $18 furnace asking price is still being held out, but $17.75 and possibly $17.50 might be done. We quote, delivered at New York tidewater over the first half, as follows:

Northern foundry No. 1	$19.00 to 19.50
No. 2X foundry	18.50 to 19.00
No. 2 plain	18.00 to 18.50
No. 2 southern foundry	18.25 to 18.75
Malleable	19.25 to 19.75
Gray forge	17.00 to 17.50

Ferro-Alloys.—A new inquiry for 300 tons of ferro-manganese for western shipment over the remainder of the year has come out and pending business is probably 2,000 tons. Some carload business has been done this week on a basis of from $43.75 to $44, seaboard. The market on sizeable lots is quoted at from $43.50 to $44, seaboard. An inquiry for 500 tons of Bessemer ferro-silicon recently came out, but could not be filled by foreign makers. Quotations on 50 per cent ferro-silicon range from $60 to $61, seaboard.

Finished Material.—Price concessions in finished lines, especially in shapes, have come more into evidence in the eastern district. The 1.50c, Pittsburg, price on structural shapes has been made by some makers with intent to bring out business under advisement, but it has scarcely had the desired effect and some interests will shortly restore their former quotations. No general price of 1.50c, Pittsburg, has been made and this level is being done largely on attractive tonnages for early shipment and in close competition. The commonly quoted market on shapes is 1.55c to 1.60c, Pittsburg. The railroads are still avoiding the structural market and it is difficult to draw a line upon their prospective policies in this regard. There is considerable indefiniteness to the situation, because of the backwardness of bidders to close their inquiries, of which there is a large pending tonnage. Lettings are scattering. The Avery building, at Peoria, Ill., 1,200 tons, has gone to the Indiana Bridge Co. and Megquire & Jones have taken the Masonic Temple at Portland, Me., 1,200 tons. The Pere Marquette, and Detroit, Toledo and Ironton roads have let 1,400 tons of bridge work, the bulk of which will be supplied by the Lackawanna Bridge Co. Vierling & McDowell have the 600 tons for the Old Peoples Home at Chicago and the American Bridge Co., 600 tons, for the Chemist building, East Forty-First street, this city. The Dunn-Salmon building, Syracuse, N. Y., which will be fabricated by the Syracuse Bridge Co., will have 500 tons of Bethlehem sections. Bethlehem shapes will also be used in the Commercial and Manual Training School at Newark, N. J., 600 tons, which has gone to the Hedden Iron Construction Co., of Newark. Milliken Bros., Inc., have been awarded loft buildings at 2 West Forty-Fifth street, this city, 900 tons, and at 200 West Seventeenth street, 500 tons. Barber & Ross, Baltimore, have the 300 tons for the District National Bank building, at Washington, D. C. A new loft building at 225 W. Twenty-Ninth street, this city, which is now up, will take 2,500 tons. Bids have gone in on 1,000 tons for trestles and ore bridges for the New Jersey Zinc Co., at Palmerton, Pa., where in addition about 500 tons of plates for bin work will be needed; upon 600 tons for the Art Students' building, this city; upon 900 tons for signal bridges for the Pennsylvania Lines West. A barge for the Water-Pierce Oil Co., for the Gulf trade, will require 300 tons of plates. Some instances of very low fabricating prices being made around New York City are still to be noted. Specifications against contracts for finished material are generally reported as good, but the situation is lacking in new live inquiry. We quote, New York delivery, as follows:

Angles, 3 to 6 inches x ¼-inch and heavier, 1.66c to 1.76c; beams, 3 to 15 inches, 1.66c to 1.76c; tees, 3 x ¼-inch and heavier, 1.66c to 1.76c; plates, carload, tank, 1.66c to 1.76; marine boiler, 2.06c to 2.16c; bar iron, 1.70c to 1.80c; soft steel bars, 1.61c to 1.71c; sheets, No. 28, black, 2.56c.

Rails and Track Material.—Bids have gone in for 3,550 tons of girder rails and 800 tons of conductor bars for the Metropolitan Street Railway Co. Bids will go in Feb. 21 for 600 tons of standards for Panama In addition to the tonnage reported as awarded to the Pennsylvania Steel Co., the Lorain Steel Co. has taken 1,700 tons of girder rails for the Public Service Corporation of New Jersey. The large southern railway inquiry for standards is still pending.

Cast Iron Pipe.—No letting has been announced upon the 2,000 tons for Worcester, Mass., upon which it is understood the Standard Cast Iron Pipe & Foundry Co. and the Utica Pipe Foundry are the low bidders at an average of $25.35. The city of Hartford, Conn., is inquiring for 750 tons, upon which bids will close Feb. 23. The cast iron pipe situation in the east as to public lettings is dull and unsatisfactory.

Old Material.—Dullness is the prevailing characteristic of the scrap market about New York and contiguous territory. Buyers are covered against their needs and cannot be interested except where attractive concessions are made. There is no change in the eastern Pennsylvania situation, where embargoes are holding off shipments. The stagnant market is effectually checking new engagements of foreign scrap and recent cargoes that have come in are waiting buyers. We quote, gross tons, prices which New York dealers will pay at tidewater, as follows:

Old steel rails (re-rolling)	16.00 to 16.50
Old car wheels	15.00 to 15.50
Old iron car axles	23.00 to 24.00
Old steel car axles	20.00 to 20.50
Heavy melting steel	14.75 to 15.25
No. 1 railroad wrought	17.50 to 18.00

Iron track scrap	15.00 to 16.00
Wrought pipe	13.50 to 14.00
Cast borings	9.50 to 10.00
Wrought turnings	12.00 to 12.50
Heavy cast scrap	15.00 to 15.50
Railroad malleable	14.00 to 14.50
Stove plate	11.50 to 12.00
Grate bars	12.00 to 12.50

METAL MARKETS.

ST. LOUIS.

Feb. 14.

Lead and Zinc.—Zinc blende brought a high price of $44.50 a ton in the Missouri-Kansas-Oklahoma district last week. The best price on an assay base of 60 per cent was $42. From the latter price there was a gradual decline to $36, the lowest of the year. When the week closed, the conditions for quick improvement were not favorable. The top price of $44.50 was $3 less than was paid for the best grades the previous week. St. Louis spelter was quoted at $5.55 at the close of the week, as compared to $5.72½ the week prior, and $6.12½ at the opening of 1910.

Lead brought a top price of $55 a ton, declining to $53.50 because of heavy shipments. The production and shipment of lead ore for several weeks have been above the average for the present period of the year.

Calamine brought $26 a ton, with 40 per cent qualities quoted at $20 and $22.

Low prices of zinc ore have affected the entire district. The wage scale has been cut approximately 25 cents a day for each workman. Shovelers who had been receiving $2.50 a day will, under the new scale, get $2.25. There has also been a reduction in rates by the can. Prior to the reduction the approximate wage scale was: Drill men, $2.50 and $2.75; assistants, $2.25; jig men, $3; assistants, $2.50; hoister men, $2.50.

Several large plants have temporarily suspended operations; others are only partly in operation, and still others are running full time.

NEW YORK.

Feb. 15.

Copper.—The market is very dull, and in spite of the favorable statistics issued by the Copper Producers' Association prices have receded. Electrolytic can be bought at 13.37½c to 13.50c. Lake is likewise easier at 13.62½c to 13.75c. The almost entire absence of business is a considerable surprise to the trade for it was believed that after the publication of the statistics consumers would enter the market. The exports are large, amounting to over 16,000 tons so far.

Pig Tin.—There is no doubt that the market is being manipulated in London. It was difficult to sell tin at any price Feb. 14, and there was a wide variation between the quotations of different dealers. In some cases this amounted to as much as ¼c. In spite of this the market today advanced sharply and tin is now quoted at 33.37½c. There is no doubt those best informed in the trade are advising their customers to buy only such metal as is needed for present requirements.

Lead.—A feeling of hesitancy prevailed in the lead market throughout the week, and in consequence somewhat lower prices were made. Quotations in New York are 4.55c to 4.65c, and in St. Louis 4.40c to 4.45c.

Spelter.—The decline of spelter to 5.35c in St. Louis, has attracted the large consumers. Tenders made on Monday were refused by consumers, but they have since sought to buy at that figure. This was refused by the producers, who are now demanding 5.40c, St. Louis, and 5.55c, New York.

Antimony. — Prices are without change at 8.50c for Cookson's, and 8.37½c for Hallett's.

CHICAGO.

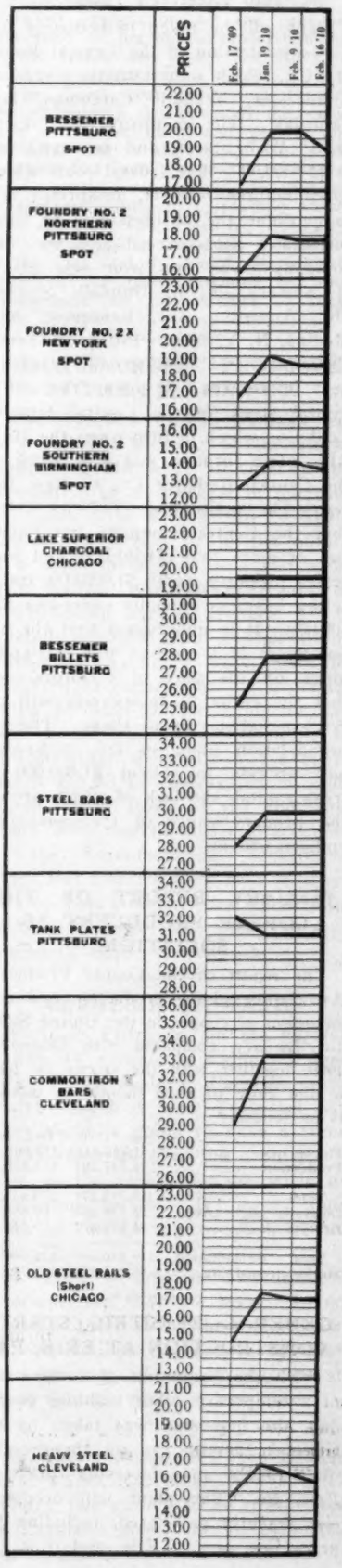
Feb. 15.

New Metals.—No change in general conditions in the metal market can be reported, this week, business having proceeded on a very quiet course, with only a moderate amount of business transacted. Prices show scarcely any variation from previous quotations, but what change has been made has been in the direction of concessions, except in tin. We quote as follows: Lake copper, carload lots, 14⅛c to 14¼c; casting, 13⅝c to 13¾c; smaller lots, ¼c to ⅜c higher. Spelter, 5.80c to 5.85c; lead, desilverized, 4.70c to 4.75c, in 50-ton lots, corroding 25c per 100 pounds higher; sheet zinc, $7.50 list f. o. b. La Salle in car lots of 600-pound casks; pig tin, 33¾c to 34c; Cookson's antimony, 10½c; other grades, 9¾c to 10¼c.

Old Metals.—Trade conditions have been as quiet this past week as for some time. Prices are nominally unchanged, on a very small amount of business going.

We quote, dealers' selling prices, as follows: Copper wire, 13½c; heavy copper, 13½c; light copper, 11½c; heavy red brass, 13c; heavy yellow brass, 10¼c; light brass, 7½c; No. 1 red brass borings, 10½c; No. 1 yellow brass borings, 8c; brass clippings, 9½c; tea lead, 3.80c; lead scrap, 4½c; zinc, 4¼c; tin pipe, 31c; tin foil, 29c.

PRICE CHART.



WILL REORGANIZE

Central Foundry Co., Which Went Into Receiver's Hands.

Steps will be taken immediately for a re-organization of the Central Foundry Co., which went into the hands of a receiver, Waddill Catchings, last Saturday. The company has offices at 37 Wall street, and is capitalized at $14,000,000. The federal court which appointed the receiver, authorized him to continue the business and to issue certificates not to exceed $200,000. The company owns cast iron pipe plants at Newark, N. J., Dundalk Station, Md., Anniston, Ala., Bessemer, Ala., Medina, N. Y., South Pittsburg, Tenn., Vincennes, Ind., and two other plants held in reserve. It owns the entire capital stock of the Central Iron & Coal Co., which in turn owns the Holt, Ala., blast furnace, and also stock of the Central Radiator Co., of New Jersey. The petitioning creditors assert that the Central company has liabilities of more than $4,561,000, and possesses property worth $1,000,000, transacting business annually exceeding $2,500,000. It is understood that the appointment of a receiver was a friendly move on the part of creditors, and that the effort to re-organize will receive assistance from them. The re-organization plan, so far as known, will provide for about $1,000,000 of fresh capital, the lack of which proved the primary cause of the company's embarrassment.

JANUARY REPORT OF THE COPPER PRODUCERS' ASSOCIATION.

The report of the Copper Producers' Association, giving production and consumption of copper in the United States for January, compared with December, 1909, together with the stocks on hand at the close of each month, in pounds, is as follows:

	Jan. 1910.	Dec. 1909.
Stocks prev. month...	141,766,111	153,003,527
Production	116,547,287	117,828,655
Total	258,313,398	270,832,182
Domestic deliveries...	78,158,387	69,519,501
Exports	81,691,672	59,546,570
Total consumption..	159,850,059	129,066,071
Stocks remaining.....	98,463,339	141,766,111

GENERAL ELECTRIC STARTS CONSTRUCTION AT ERIE, PA.

With the beginning of construction of a temporary office building yesterday, the first step was taken by the General Electric Co. on the erection of a large manufacturing plant at Erie, Pa. The plant will occupy a site recently purchased, including 900 acres just east of Erie, and it is said that building of the various structures included in the Erie plans will begin with the opening of spring. The statement is made that when the entire plant is placed in operation, it will employ from 10,000 to 12,000 men.

WILLING WORKMEN

Helped to Employment by Metal Trades and Founders' Organizations.

The annual dinner of the Manufacturers' Association of Pittsburg was held at Fort Pitt hotel, Monday evening, Feb. 14. Addresses along the lines of their respective work were made by President Frank H. Zimmers, of the Manufacturers' Association; O. P. Briggs, president of the National Founders' Association, and Robert Wuest, commissioner of the National Metal Trades Association.

Messrs. Briggs and Wuest outlined the work which has been done by their respective associations during the past year, and elaborated to some extent upon the employment bureaus which were conducted at a considerable expense for the benefit of employes seeking work. Mr. Briggs pointed out the decrease in number of strikes against members of the National Founders' Association from year to year since its organization, and Mr. Wuest, during the course of his remarks, said that his association was one of defense instead of a fighting organization, and that it was constructive, and that its work during the past 17 years had demonstrated that it was not only powerful, but just, and urged Pittsburg manufacturers who were not already members, to join the local association and help the work along. Judge Josiah Cohen, of the Allegheny County Common Pleas Court, delivered an address upon "Morals and Business."

PLATES FOR WESTERN WATER PROJECTS.

Seattle, Wash., Feb. 16. (By wire.)

Portland, Ore., water board will open bids March 8 for steel pipe for the new Bull Run water system, for which about 14,000 tons of plates will be required. One thousand tons of plates will be necessary for steel water mains at Seattle, for which bids will be opened Feb. 18.

The Nova Scotia Steel & Coal Co., Ltd., declared the usual quarterly dividends of 1 per cent on common stock, and 2 per cent on preferred stock, payable April 15.

CONTRACTS FOR EQUIPMENT

For New Plant for American Rolling Mill Co.

The American Rolling Mill Co., Middletown, O., has placed contracts for the equipment for its new plant, building at Middletown, as follows:

With the United Engineering & Foundry Co., Pittsburg, for a 40-inch blooming mill of its latest improved design, together with a complete equipment of shears, tables, etc., and also for a 24-inch special sheet bar and billet mill with tables and accessory machinery. The equipment will be used for making sheet bars, slabs and billets.

With the National Roll & Foundry Co., Pittsburg, for one of the largest single-sheet mill installations placed in recent years, which consists of eight complete hot mills with roughing stands for each mill, which represents 16 stands of 31-inch hot mills and four stands of 26-inch cold mills. The shear and doubling equipment, roll lathes, etc., for the sheet mill have not yet been closed.

With the Mesta Machine Co., Pittsburg, for a 55 x 60 inch twin cylinder reversing engine, weighing over 500 tons, for the blooming mill. This engine is of the same general design as shown on page 67, THE IRON TRADE REVIEW, Jan. 6, 1910.

With the Wisconsin Engine Co., Corliss, Wis., for a 48 x 60 inch simple Corliss engine for driving the sheet mills.

With the Westinghouse Electric & Mfg. Co., Pittsburg, for two 1,500 kw. exhaust steam turbo-generators, three-phase, 25-cycle, 2,400 volts, and one high-pressure unit of the same characteristics and two 750 kw. rotary converters with transformers and accessories. The low pressure units will be operated, in connection with regenerators, by the exhaust steam from the other engines.

Altogether, Pittsburg firms have fared well in the distribution. The plant complete is estimated to cost $3,000,000 and will be devoted to the production of the company's exclusive specialty, American Ingot Iron.

Breaks Sales Record.—The world's record for rapid sales of automobiles to individual buyers was established at the ninth annual Chicago show when Thomas B. Jeffery & Co., makers of the Rambler, sold 175 separate cars, in seven days, making a total of $350,000 worth of automobiles.

PRESSED STEEL CAR

Report is Presented for Year Ending Dec. 31, Last.

The eleventh annual report of the Pressed Steel Car Co., which has just been published, shows that the gross sales for the year ending Dec. 31 last were $10,346,816.19. Of this business, about 75 per cent was done during the second and fourth quarters of the year, the works not being in full operation the first quarter, and the output for the third quarter being small, owing to labor difficulties. The net profits for the year from all sources were $1,954,582.67. The 10-year purchase money mortgage of $235,000 on the McKees Rocks, Pa., plant was paid in July; the ninth installment, due Feb. 1, 1910, was anticipated and paid, leaving $500,000 due Feb. 1, 1911, of the original issue of $5,000,000 notes. During the year, $245,436.56 was expended on improvements and betterments, largely at the McKees Rocks plant. The sum of $120,000 has been credited to depreciation during the year.

The statement for 1910, with the condensed balance sheets for the years 1909 and 1908, with comparisons, follow:

Assets:—	1909.	1908.
Prop. and franchises	$27,054,968.03	$26,929,531.47
Securities	1,951,740.32	2,504,383.62
Taxes and ins.	23,546.29	37,218.84
Current Assets:—		
Accts. receivable	2,157,670.73	668,104 61
Inventory	2,842,074.79	246,509.58
Cash	987,359.59	2,837,989.80
Total	$35 017,359.75	$33,223,737.92
Liabilities:—		
Common stock	$12,500,000.00	$12,500,000.00
Preferred stock	12,500,000.00	12,500,000.00
First mortg. notes.	500,000.00	1,000 000.00
McKees Rocks pur.	.....	235,000.00
Allegheny pur.	75,000.00	75,000.00
Current Liabilities:—		
Accts. payable	1,639,361.17	169 532 01
Bills Payable:—		
Salary and wages	141,925.64	37,001.40
Interest	10,623.32	21,017.55
Pref. div.	218,750.00	218,750.00
Surplus	6,653,639.68	5,694 057.01
Res. for conting.	778,059.74	773,379.95
	$35,017,359.75	$33,223,737.92

A former subsidiary concern, the Canada Car Co., Ltd., was sold to Canadian capitalists, who were seeking to bring about the merger of important car manufacturing concerns in Canada. From this sale, the Pressed Steel Car Co. realized all its money invested in the Canadian Car Co., together with interest at 7 per cent, and in addition, $1,700,000 was received for common stock, contracts, etc. The company contemplates disposing of the buildings and improvements of another subsidiary concern, the Pennsylvania Car Wheel Co., since the leased ground, on which the plant stands, expired in the year, and further, since the introduction of the rolled steel wheel has materially reduced the demand for cast iron wheels under steel cars. The Western Steel Car & Foundry Co., another subsidiary, started operating its Hegewisch, Ill., plant late in the fall, repairing cars for different railroads, but little business was taken and no earnings were made. It now has a fair amount of business on its books.

Commenting upon the labor difficulties, experienced by the company last summer, President F. N. Hoffstott said:

On July 13, certain of our employes, misunderstanding rules and regulations, quit work and undertook to hinder and prevent those who wished to continue work from so doing. The dispute between these two factions, the one quitting work and the other desiring to continue work, caused such a disturbance that it was necessary for your management to ask for the protection of the authorities of Allegheny county. The disturbance was seized upon by various labor leaders as a favorable opportunity to attempt to organize your company's employes into labor organizations and to make rules to govern and determine the rates of wages that your company should pay. This was attempted notwithstanding the fact that your company's business is almost entirely a piece work proposition and one that is not and cannot be measured by a daily rate of wages, the wages being paid for labor being dependent entirely upon the character of the work, the ability and efficiency of the employe and the price your company is able to secure for its product. By reason of this attempted organization of our former employes and by reason of other outside interference, which tended to prevent their resuming work, it required about 60 days from the time that these labor troubles began for the men to appreciate that the management had given and would continue to give all employes just treatment and fair and reasonable wages. On Sept. 9, the troubles ceased and your company's shops were immediately filled with men anxious to work at the same rates of wages and under the same methods prevailing at the time the disturbance began. Since then, and as heretofore, wherever men have been found efficient they have received voluntarily and gladly proper recognition in proper wage advances, it being the endeavor on the part of your management to give the men their full share of any substantial profit derived from their more efficient service.

It seems unnecessary to go into further details on this subject other than to state that recognizing the fact that your company must necessarily employ a large number of foreigners (over 70 per cent), new to American ways and unfamiliar with the English language, a special department was installed when this disturbance began at McKees Rocks and another has since been opened at the Allegheny works, known as "Information Bureau and Interpreter's Office." These bureaus are under carefully selected heads with proper assistant interpreters, who hear and investigate every complaint or grievance brought to their attention. The operation of this department has been satisfactory to the men and most gratifying to your management, and has removed many cases of misunderstanding among the men and to a large extent during the labor difficulties enabled your company to inform and convince the men that no real differences existed, but that they were being misled and misinformed by their leaders, and others seeking notoriety and personal benefit. It is believed that this bureau affording a place of explanation for the employes will tend to prevent misunderstandings in the future and lessen the effect of outside interferance.

The direct cost occasioned through the compulsory shut-down of the works over the above mentioned period, and the extra cost occasioned by these labor troubles, has been charged to contingent fund, which fund during the year increased sufficiently to more than absorb this charge. The executive committee of your company carefully considered at the time and the board unanimously approved the policy adopted by your management on the conduct of these labor troubles.

STOCK INCREASE PROPOSED BY THE PULLMAN CO.

The directors of the Pullman Co. have called a meeting of the stockholders for March 21, to vote on the proposition of an increase in the capital stock from $100,000,000 to $120,000,000, which will be in the nature of a stock dividend. In a statement made by the directors in regard to this proposed increase in stock, it was pointed out that the considerations influencing this action were, "that the increased investment in the manufacturing facilities of the company had been so material and considerable as to justify the directors in the belief that it should be represented in additional capital stock of the company. There were certain reserve accounts in the manufacturing department which had hitherto been held in abeyance to meet contingencies which were possible to arise, but which present conditions render improbable."

CARNEGIE ON TAFT.

While in Pittsburg, on the evening of Feb. 14, enroute to California from New York, Andrew Carnegie said: "Taft's speech in New York last Saturday night is going to have a tremendous effect all over the country. It came at the right time to settle all disquieting feeling. It begot confidence to the business outlook of the future."

Referring to uniform laws for corporations, Mr. Carnegie says: "In my judgment there should be uniform laws for corporations engaged in an interstate buisness. This can only be attained through national legislation."

A building permit has been granted L. F. Parks, Cincinnati, for a brick foundry, two stories, to be constructed on Langland street, at an estimated cost of $4,000.

PERSONAL.

William K. Vanderbilt Jr. has been elected to fill a vacancy upon the board of directors of the Lackawanna Steel Co.

E. S. Barbour was chosen treasurer of the Michigan Stove Co., Detroit, at the recent annual meeting, when the old board of directors was re-elected.

K. Landgrebe, who has been with the Bethlehem Steel Co., has resigned to become superintendent of blast furnaces for the Tennessee Coal & Iron Co., at Ensley, Ala.

Elmer E. Billings, formerly superintendent of the nail mills of the Carnegie Steel Co., South Sharon, Pa., has been appointed superintendent of the Jones & Laughlin Steel Co.'s new nail mill now building at Aliquippa, Pa. Mr. Billings will enter upon his new duties March 1.

A. Falkenau, formerly president of the Falkenau-Sinclair Machine Co., Philadelphia, has become associated with George G. Hooper, industrial engineer, at 165 Broadway, New York. The firm makes a specialty of improving and remodeling power plants and foundry engineering.

George Piper, who for five years has been manager of Oliver Brothers Purchasing Co.'s Pittsburg office, has severed his connection with the company to take effect Feb. 15. Mr. Piper opened the Pittsburg office for this company and enjoys a large acquaintance with the larger manufacturers and jobbers.

M. H. Wickhorst, Aurora, Ill., has been appointed chief chemist in charge of rail tests by the American Railway Engineering and Maintenance of Way Association. Mr. Wickhorst was appointed engineer of tests for the Burlington railroad in 1897, and has been given a leave of absence from the Burlington for one year, being succeeded at Aurora by W. A. Derby.

J. L. W. Birkinbine of the Birkinbine engineering offices, Philadelphia, is on a visit to his home after an absence of 16 months in Mexico. As chief engineer of the Oaxaca Coal & Iron Co., he has been prosecuting extensive exploration for coal in the mountains of north-western Oaxaca and surveys of railroad routes to transport the coal to the central plateau and to the Pacific ocean.

Walter F. Schleiter, of Pittsburg, secretary of the Dilworth-Porter Co., and president of the Railroad Supply Co. of the United States, has been appointed a delegate to represent the United States at the International Railway Congress which will meet in Berne, Switzerland, in July. Five delegates from the United States will sit in this congress. No delegate will be accepted unless he is appointed by authority of the president of the United States and bears the proper authority from the secretary of state.

DEATH OF Z. G. SIMMONS, OF KENOSHA, IND.

Zalmon G. Simmons, founder of the Simmons Mfg. Co., Kenosha, Wis., and prominent in the development of the northwest, died Feb. 12. He had been in ill health for some time. He was born in Montgomery county, N. Y., Sept. 10, 1828, and settled at Kenosha in 1843. For a number of years he was interested in various mercantile enterprises at Kenosha, and in 1856 he bought a half interest in the Wisconsin Telegraph Co., becoming its president and manager, the line in 1881 being leased to the Western Union Co. He completed the construction of the Kenosha, Rockford & Rock Island railroad, which later became a part of the Northwestern system. In 1865 he purchased a half interest in the First National Bank, becoming its president. In 1891 he completed the construction of a railroad from Manitou Springs to the summit of Pike's Peak, Colo. However, his principal interest was the Simmons Mfg. Co., which now has branches in a number of cities. He was mayor of Kenosha for several years, and served as a member of the state legislature.

Thomas H. Dodge, inventor and philanthropist, died at his home in Worcester, Mass., Feb. 12, aged 87. He was the inventor of the cylinder printing press.

Lemuel C. Willard, secretary of the Willard, Sons & Bell Iron Works, of South Chicago, died Feb. 9, at his home in Chicago, after an illness from typhoid-pneumonia, aged 47.

Adams Crocker, president of the Union Machine Co. and the Union Screen Plate Co., died recently at his home in Fitchburg, Mass. He was a graduate of Harvard, and had been prominent in collegiate athletics.

Adolph E. Mayer, sales manager of the International Harvester Co., died Feb. 13, at Hot Springs, aged 54. He had spent more than half his life in the employ of the McCormick Reaper Co. and its successor, the International Harvester Co.

James Smith, 66 years old, former secretary of the Oliver Iron & Steel Co., Pittsburg, died Feb. 9, at the family residence in Pittsburg. Mr. Smith was born in County Tyrone, Ireland. In 1866 he came to this country, settling in Philadelphia. Later he came to Pittsburg and entered the employ of the Oliver Iron & Steel Co. He served in various capacities, and later was made secretary. In 1892, Mr. Smith severed his connection with this company and entered the real estate and insurance business.

LACKAWANNA STEEL BOND ISSUE AUTHORIZED.

New York, Feb. 16. (By wire.)

Stockholders of the Lackawanna Steel Co. yesterday authorized the issuance of $10,000,000 new first consolidated mortgage 5 per cent bonds and $10,000,000 five year 5 per cent convertible debentures, in accordance with the previously published financial plan of the directors.

EUROPEAN COPPER VISIBLE SUPPLY.

London, Feb. 15. (By cable.)

The visible supply of copper on Feb. 15 was recorded at 114,100 tons; compared with 110,820 tons on Feb. 1, and 52,250 tons on Feb. 15, 1909.

FURNACE IS RESUMING.

One of the blowing engines of the Chester, Pa., stack of the Delaware River Steel Co., which was recently damaged by fire, has been put in operation and it is believed that the second may be started this week so that the furnace may again be blowing in a few days. The stack is banked at the present time.

Dinner to Employes.—The annual dinner to heads of departments and all the employes of the Pittsbu g Valve, Foundry & Construction Co., was held at Hotel Henry, Pittsburg, Tuesday evening, Feb. 8. This annual event is tendered by Pres. Joseph T. Speer, in appreciation of the co-operation and industry shown by his employes, the dinner of last week being the fourth since the organization of the Pittsburg Valve, Foundry & Construction Co.

Second Stack Lighted.—Furnace No. 2 of the Jones & Laughlin Steel Co.'s new plant at Aliquippa, Pa., was started at noon Feb. 14. The first furnace was put in operation Jan. 1, and the third will be ready about March 15. Each furnace has a capacity of 500 tons.

Stock Market Takes Upward Turn

The week in the stock market began with a continuation of the decline which characterized the last five weeks, but the market took an upward turn and closed Friday with a higher range of prices.

Monday, prices declined from 2 to 7 points. Steel common broke to 75½, and other market leaders were also lower. Money was easy. The federal incorporation bill was introduced in congress. Tuesday, the market opened weak, then rallied, but closed lower. Money continued easy. Wednesday, substantial support was given the market, and prices took an upward turn. It is believed that great banking interests in New York came to the support of the market. Money was easy and sterling exchange lower. Thursday, net changes in prices were small, but on the whole the market continued strong. The bank of England discount was reduced from 3½ to 3 per cent, and the rate of the Imperial Bank of Germany was reduced from 4½ to 4 per cent. Friday the market was quiet and closed higher. The Pullman Co. declared a stock dividend of $20,000,000. Saturday was a holiday.

Call money throughout the week was easy, ranging from 3 to 2½ per cent, with the average about 2¾ per cent. Time money was easy and somewhat lower. Clearings for the United States fell off about 22 per cent from the week before. The estimated clearings were $2,963,858,470 against $3,780,471,848 the week before, and $2,460,948,619 for the corresponding period the year before. The actual report of clearing house banks showed loans decreased $21,684,000; deposits decreased $22,516,200, and surplus increased $5,608,350; the ratio of reserve 27.4 against 26.9 the week before. Trust companies and non-member banks showed loans and investments decreased $5,353,200, deposits decreased $3,653,400 and the percentage of reserve 17.7, against 17.4 the week before.

Gold exports from New York were reported at $4,687, while the imports were $540,300, of which $386,000 was from France in transit to the West Indies.

Failures for the week numbered 289, against 298 the week before, and 222 the corresponding week of last year. Liabilities and failures for February, up to Feb. 12 was $11,322,208 against $2,801,866 for the same period last year.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. Feb. 12	Changes in week	Date 1910 Ann. M't'g.	Stock Outstanding	Basis	Dividend Last Dividend	Dividend Date Last Div. Pay.
Allis-Chalmers	12	.....		$19,820,000		.....	.....
Allis-Chalmers, pr	41	+2		16,150,000	7 cum.	1¾ Q.	Feb., 1904
American Can	11⅜	+ ⅜	Feb. 2	41,233,300		.....	.....
American Can, pr	76¼	+1⅜		41,233,300	7 cum.	1¾ Q.	Jan., 1910
Am. Car & Fdy	60	—1	June 24	30,000,000		½ Q.	Jan., 1910
Am. Car & Fdy., pr	118⅛	+1⅛		30,000,000	7 n. c.	1¾ Q.	Jan., 1910
American Loc	49½	+ ½	Oct. 18	25,000,000	5	1¼ Q.	Aug., 1908
American Loc., pr	112	+ ¾		25,000,000	7 cum.	1¾ Q.	Jan., 1910
Am. Ship	74	.....	Oct. 12	7,600,000	4	1 Q.	Mar., 1910
American Ship, pr	111	.....		7,900,000	7 cum.	1¾ Q.	Jan., 1910
Am. Steel Foundries (new)	56½	— ½	Dec. 1	17,184,000		1¼ Q.	.....
Barney & Smith	40	.....	June 7	2,000,000	4	.....	Sept., 1907
Barney & Smith, pr	100	.....		2,500,000	8 cum.	1 Q.	June, 1908
Bethlehem Steel	28¼	+ ¼	April 5	14,862,000		.....	.....
Bethlehem Steel, pr	58	+1		14,908,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	48½	+1	Mar. 15	45,000,000	5	2½ S. A.	Feb., 1910
Cambria Iron	46	— ½		8,468,000*	4	2 S. A.	Sept., 1909
Chicago Pneumatic Tool	45½	+5	Feb. 21	6,145,000	4	2 S. A.	Oct., 1907
Colorado Fuel	36⅝	+1⅛	Oct. 17	34,235,500		1¾ Q.	April, 1902
Crucible Steel	143⅜	— ⅝	Oct. 19	24,578,400		3½	.....
Crucible Steel, pr	85	— ⅞		24,436,000	7 cum.	1¾ Q.	Dec., 1909
Empire Steel	13	—2	Feb. 23	1.254,770		.....	.....
Empire Steel, pr	84	—1		2,500,000	6 cum.	3 S. A.	July, 1909
Fay & Egan	90	—5	Feb. 15	1,000,000	7	3 S. A.	Nov., 1908
Fay & Egan, pr	120	.....		1,000,000	7 cum.	1¾ Q.	Nov., 1909
General Electric	151¾	+1¾	May 10	65,179,600	8	2 Q.	Apr., 1910
Harbison-Walker	35	+1	Jan. 17	18,000,000		2 Q.	Oct., 1907
Harbison-Walker, pr	94	+ ½		9,600,000	6 cum.	1½	Oct., 1909
International Pump	46	— ¾	May 10	17,762,500		1 Q.	April, 1905
International Pump, pr	85½	— ¼		11,350,000	6 cum.	1½ Q.	Feb., 1910
Lackawanna Steel	47¾	+ ¾	Mar. 9	34.978,000		.....	.....
Lake Sup. Corp.	24	+ ⅛	Oct. 5	40,000,000		.....	.....
New York Air Brake	77	—2	June 16	10,000,000	8	2 Q.	Oct., 1907
Niles-Bement-Pond	101	.....	Feb. 2	8,500,000	6	1½ Q.	Mar., 1910
Niles-Bement-Pond, pr	104	.....		2,000,000	6 cum.	1½ Q.	Feb., 1910
Otis Elevator Co	52	—2	Mar. 21	6,375,300	3	1½ S. A.	Oct., 1909
Otis Elevator Co., pr	97	—1		6,295,000	6 n. c.	1½ Q.	Jan., 1910
Pa. Steel	66	+1	May 9	10,750,000		.....	.....
Pa. Steel, pr	113½	—1½		16,500,000	7 n. c.	3½ S. A.	Nov., 1909
Pittsburg Coal Co	20½	+ ⅛	Mar. 8	28 104,600		.....	.....
Pittsburg Coal Co., pr	71	— ½		27,071,800	7 cum.	1¼ Q.	Jan., 1910
Pressed Steel Car	40½	+1½	Feb. 16	12,500,000		1 Q.	Aug., 1904
Pressed Steel Car, pr	103	+1		12,500,000	7 n. c.	1¾ Q.	Feb., 1910
Pullman	199¼	+1½	Nov. 9	100,000,000	8	2 Q.	Feb., 1910
Railway Stl. Spring	41	+2	Mar. 3	13,500,000	2	1 S. A.	Oct., 1908
Railway Stl. Spring, pr	101	—2¾		13,500,000	7 cum.	1¾ Q.	Dec., 1909
Rep. Iron & Steel	37⅝	+2⅝	Oct. 19	27,191,000		.....	.....
Rep. Iron & Steel, pr	99⅞	— ¼		20,416,900	7 cum.	1¾ Q.	Jan., 1910
Sloss Sheffield	76¼	+2⅜	Mar. 9	10 000,000	5	2 Q. †	Feb., 1910
Sloss-Sheffield. pr	116⅛	— ⅞		6,700,000	7 n. c.	1¾ Q.	Jan., 1910
U. S. Pipe & Fdy. Co	25½	+ ½	June 22	12,106,300	2	1 Q.	Dec., 1907
U. S. Pipe & Fdy. Co., pr	79	+1		12,106,300	7 n. c.	1¾ Q.	Dec., 1909
U. S. Steel	78¾	—1¼	April 18	508,302,500	4 n. c.	1¾‡ Q.	Mar., 1910
U. S. Steel, pr	119⅞	— ⅝		360,281,100	7 cum.	1¾ Q.	Feb., 1910
U. S. Steel, 5s	104⅜	— ⅜		463,798,000	5	.....	.....
Va. Iron, Coal & Coke	63	—3	Sept. 20	9,073,680		.....	.....
Westinghouse Elec	68½	+ ⅝	July 27	27,173,200*		1¾ Q.	Oct., 1909
Westinghouse Air Brake	146½	+5½	Oct. 4	14 000,000*		4 Q.	Oct., 1909

†Includes deferred dividend of ¾ of 1 per cent.
Par value of shares, $100, except those starred (*), $50.
‡Includes ¾ per cent extra.

The bulletin of the American Railway association shows that on Feb. 2 the car surplus of the United States and Canada stood at 24,975, a decrease of 1,869 from the preceding two weeks.

The number of shares sold on the New York exchange amounted to 4,788,600, against 4,865,700 the week before, and 1,496,239 the corresponding week of 1909. Bonds other than government bonds sold to the value of $16,975,000, against $16,783,000 the week before, and $23,030,000 the corresponding week last year.

Copper Stocks.

New York.—Amalgamated Copper closed 76⅜, a decrease of 1⅛.

Boston.—Butte Coalition closed 25, a decrease of 1; Calumet & Arizona closed 73, an increase of 3; Calumet & Hecla closed 635, an increase of 15; North Butte Mining closed 35½, an increase of 2. Quincy Mining closed 83, an increase of 1½.

Financial Notes.

The Union Drawn Steel Co., Beaver Falls, Pa., has filed notice of its increase of capital stock from $200,000 to $1,500,000.

The Niles-Bement-Pond Co. has declared the regular quarterly dividend of 1½ per cent on common stock, payable March 21, and 1½ per cent on the preferred, payable Feb. 15.

The Buckeye Steel Castings Co., Columbus, O., has declared an extra dividend of 2 per cent in addition to the regular 1½ per cent on the common stock. The regular dividend of 1½ per cent on preferred was also paid.

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THE AVERAGE PAID CIRCULATION OF THE IRON TRADE REVIEW FOR THE ISSUES OF THE FOLLOWING MONTHS WAS:

January	5,506
February	5,346
March	5,396
April	5,508
May	5,533
June	5,551
July	5,572
August	5,597
September	5,609
October	5,628
November	5,634
December	5,662

February 17, 1910

THE DISILLUSIONMENT IN THE CONNELLSVILLE COKE TRADE.

The distress developed in the Connellsville coke trade in the past fortnight will emphasize to Connellsville coke operators a fact which should have been generally recognized last fall, that true values of coke are only relative. Connellsville coke is not indispensable as a blast furnace fuel. It is more valuable than other cokes, but its superiority is more or less precisely defined. Neither in 1906 nor 1907, years of full activity in the iron trade, did the Connellsville and lower Connellsville regions produce as much as one-half of all the oven coke made in the country.

The recent slump in Connellsville coke prices is merely an incident, the meeting of a slight over-supply and an absolutely non-receptive market. The important thing which has occurred is that various furnaces contracted for outside cokes when the Connellsville trade was still waiting for them to come to that region. Last fall the theory met with general acceptance in the Connellsville coke trade that when iron and steel conditions are particularly good, with high prices and pressure upon equipment for the largest possible output, Connellsville coke will be used by a number of furnaces which in slack times manage to get along with the inferior cokes of other regions, and that the year 1910 was going to furnish such special conditions. They proceeded to advance prices, apparently believing that circumstances would be such as to allow no price to be really prohibitive. In this they were mistaken. The value of Connellsville coke is relative.

The iron trade has furnished all the increase in coke consumption that could have been expected; more, indeed, than there was much reason to expect back in September, when fancy prices first appeared for Connellsville coke. The trouble has not been there; it has been that the increase in demand has not all gone to the Connellsville region. Since 1907 there has been approximately as great an increase in coke-making capacity in the Connellsville region as there has been in coke-consuming capacity in the territory naturally tributary, through the building of new furnaces and the enlargement of old ones. In this respect, the alignment of 1907, when the productive capacity of the Connellsville region was well engaged, has been preserved, but, through the high prices asked for Connellsville coke, the kind of coke used by some of the furnaces has been altered.

STEEL AND COMMODITY PRICES.

Seldom has a single topic been more widely discussed than the one which has been taken up throughout the length and breadth of the land in the past few weeks—the "cost of living." The discussion itself has led nowhere; indeed it could not when the very subject is not susceptible of anything approaching precise definition. Not only has there been confusion, as James J. Hill pointed out, between the high cost of living and the cost of high living; there has also been a great omission in that the discussion has dealt chiefly with the cost of commodities, when the cost of living embraces other subjects, such as the cost of labor for domestic service, house repairs, etc., rates of rent, and a number of other items.

While the discussion has led to nowhere, and is likely to continue to do so, if the expression may be permitted, it has produced results by directing attention and study to important economic principles. The bearing of "trusts" and the tariff upon the high cost of living has been much canvassed. While the systems of "index numbers," which, as purporting to represent the average cost of commodities, are frequently taken as representing the "cost of living" are a very poor index in that respect, they do furnish an excellent measuring stick whereby one may observe whether some given commodity has advanced more or less than the average of commodities. Did these "index numbers" serve no other purpose they would still be valuable for the purpose of making such comparisons.

The iron and steel industry has trends of its own, although it is so frequently spoken of as the "barometer of trade" and it is of special value to the trade to observe whether its price movements have been more or less pronounced than the average movement of a number of representative commodities. Not only is such a comparison of value to the iron and steel trade; it may also be of value as suggesting, in a way, whether there is much or little in the more or less popular idea that to the two T's, trusts and tariff, much of the present high cost of living should be ascribed.

Bradstreet's index number, repre-

senting 96 commodities, has moved, as to the great swings, as follows: The average of 1892, the year before the panic, was $7.78; the subsequent low point was July 1, 1896, at $5.70; the average in 1897, which was the lowest year for iron and steel prices, was $6.12; the subsequent high point was Dec. 1, 1902, at $8.14, and the average on Jan. 1 last, the highest in more than 18 years, was $9.23.

There have been such changes in the iron and steel industry in these 18 years that no system of averaging can be devised which would be fully representative at all times, or would be entirely acceptable to all trade authorities. An average can be compiled of finished steel products, but even then there is difficulty in determining what weights should be given to the different commodities, for the relative tonnage production of different lines has greatly varied. Finished steel products, however, do not represent the entire product of the iron industry. In 1907 iron and steel castings furnished about one-half as large a tonnage as finished rolled steel. If pig iron alone be taken as a basis, the objection may be urged that in the early nineties it was possible to buy iron in the open market and convert it into most finished steel products at a fair profit, whereas, in the late years it has not always been possible.

It seems desirable, then, merely to make certain comparisons of iron and steel prices with the commodity numbers cited above, without attempting to reduce them to a single unit for comparison.

Beginning with pig iron, we may make a mixture which seems good for statistics, although it might not make a good casting; a ton each of foundry iron at Philadelphia and Chicago and two tons each of Bessemer at Pittsburg and of southern iron at Cincinnati. The average price per ton of these ingredients in 1892 was $13.92; in 1897, $10.23; in 1902, $20.48; Jan. 1 last, $18.47, and at present, $18.00.

From 1892 to the present, Bradstreet's index number advanced 19 per cent; pig iron advanced 29 per cent. From the low point of July 1, 1896, to the present, Bradstreet's number advanced 62 per cent; from the low year, 1897, to the present, pig iron advanced 66 per cent. In these comparisons, pig iron advanced more than commodities at large, but next comes a striking divergence. From 1902 to the present, the Bradstreet number advanced 13 per cent, while pig iron declined 12 per cent. Pig iron is much lower, furthermore, than in 1907, while the Bradstreet number this year is decidedly higher than the high point of 1907.

Thus in 18 years pig iron has advanced more than commodities at large, but in the past few years, either since 1902 or since 1907, pig iron is much lower, relative to commodities at large. In the 18 years, there has been a material reduction in the tariff, while the trusts have appeared. There is, then, one T for each side of the argument, a very equitable arrangement.

Since 1892 there has been, as noted, a complete realignment of the industry, whereby in recent years pig iron is higher relative to finished products, or finished products are lower relative to pig iron, than in 1892. It should be expected, then, that finished steel products should show a less advance from 1892 to the present, than pig iron. As a matter of fact, they show a decline. Taking all finished steel products and weighing them approximately according to recent tonnage production, it is found that from 1892 to the present prices have declined about 18 per cent, while Bradstreet's number increased 19 per cent; from the extreme low point of 1897 to the present finished steel products advanced 53 per cent, while Bradstreet's number increased 62 per cent, and from 1902 to the present finished steel declined 11 per cent while Bradstreet's number advanced 13 per cent.

As regards finished steel products, then, there is the clearest evidence that relative to other commodities they are much cheaper than in 1892 or in 1902.

It is with finished steel, of course, that one has really to do, rather than with pig iron. Having found that finished steel products are much cheaper, relative to pig iron, than in 1892, and noting the great improvements in foundry practice, and the prices of some familiar products, there is basis for concluding that the finished products of the foundry industry are also cheaper now than they were in 1892.

What becomes, one may ask, of the so-called "gold theory," whereby the increase in commodity prices is ascribed to the heavy production of gold? The argument has often been presented against the gold theory that advances in commodities and other items of value which are measured in gold have been far from uniform. Certainly the products of the iron and steel industry are important, running as they have in recent years into more than a billion dollars a year, and that they do not carry out the gold theory is worthy of more than passing note.

It may be urged that there have been great improvements in methods and equipment in the iron and steel industry. Undoubtedly; but in what industry have there not been improvements? The standard of living is higher, hours of labor are shorter, and daily wages are higher. Something has had to pay the bill made up of those items, and the improvements have largely contributed.

CONSOLIDATION IS DENIED.

Officials of the American Can Co. deny the report from Ottawa, Ont., that a deal had been entered into with the Canadian canneries, which would eventually bring these companies into one combination. The Canadian Canneries controls a large number of the plants of the Dominion and has always been a trade rival of the American Can Co., which has plants at Montreal and Hamilton, Ont.

The directors of the American Radiator Co. have recommended an increase of $2,000,000 in the common stock which is to be issued in lieu of an unsubscribed and unissued $2,000,000 of preferred stock which is to be withdrawn. The company's present authorized issue of 7 per cent preferred stock is $5,000,000, of which $3,000,000 is outstanding. Of the common stock, the full authorized issue of $5,000,000 is outstanding.

EXPORTS OF IRON AND STEEL PRODUCTS TO COMMUNITIES BORDERING ON THE PACIFIC OCEAN.

Interesting statistics of the exports of iron and steel products during the past year from the United States to foreign countries and American territories bordering on the Pacific ocean are contained in the latest issue of the monthly summary of commerce and finance of the United States, issued by the department of commerce and labor. The statistics cover the first 11 months only of 1909.

Agricultural implements were exported as follows: To Chile $304,411; to Australasia $960,755; to Philippine islands, $29,125; to Eastern Asia and Oceania, $906,371.

One hundred and twenty four automobiles valued at $247,037 were exported to Australasia and 87 valued at $172,206 to eastern Asia and Oceania.

Exports of steel rails to Japan comprised 10,000 tons and to eastern Asia and Oceania, 35,000 tons.

Nine thousand tons of structural steel was exported to Mexico; 5,848 tons to Japan, and 3,027 tons to Philippine islands.

During the first 11 months of 1909 Japan purchased 1,046 net tons of steel wire; Australasia purchased 22,512 net tons and western South America 10,368 net tons, an increase for the communities named of 1,892 tons over the corresponding period in 1908.

Japan imported machine tools from the United States to the value of $77,253 between Jan. 1 and Dec. 1, 1909; Australasia machine tool imports were $105,482 during the same period.

Six American locomotives were exported to Japan, one to Australasia; two to Philippine islands and nine to eastern Asia and Oceania. Locomotive exports show a great falling off when compared with the corresponding statistics of 1908 and 1907. The figures for 1908 are as follows: To Japan, 39 locomotives; to Australasia, 2; to eastern Asia and Oceania, 100; to Philippine islands, 4. The 1907 figures are: To Japan, 52; to Australasia, 77; to Philippine islands, 10; to eastern Asia and Oceania, 123.

Ten thousand tons of merchant pipe and fittings were exported to Japan; 3,710 tons to Australasia and 1,985 tons to Philippine islands.

The following table gives a summary of the exports of iron and steel products from the United States to American territories bordering on the Pacific ocean during the first 11 months of 1909:

	To Alaska.	To Hawaii.	To Philippines.
Automobiles, number...	4	229	82
Railroad cars.....	$86,458	$9,380	
Coke, tons	120	492	
Pig iron, tons.....	66	772	100
Bars, net tons.....	758	2,747	4,132
Steel rails, tons.....	6,916	2,480	5,110
Sheets, net tons.....	555	2,754	5,060
Tin plate, net tons....	12,312	2,102	10
Structural steel, tons..	3,690	600	3,027
Wire, net tons.....	17	322	663
Machine tools, ...	.....	.....	.....
Locomotives	.....	3	2
Stationary steam engines	112	14	30
Nails, net tons.....	926	1,242	1,107
Merchant pipe and fittings, net tons	930	3,665	1,935

Practically all of this business with American territories is done through Pacific coast ports, San Francisco and Seattle enjoying the bulk of the trade. A large percentage of all of the iron and steel exports of the United States to territories bordering on the Pacific ocean, both foreign and domestic, is shipped from Pacific coast ports.

UTAH COPPER CO.'S REPORT FOR THE YEAR.

The Utah Copper Co. merger has been described in connection with listing on the New York stock exchange $2,700,000 additional stock, and authority to list $400,000 additional on cancellation of Boston Consolidated notes, as well as $8,888,890 for exchange for Nevada Consolidated stock. The Utah company in its report for the year ending Dec. 31, 1909, gives the following figures:

Gross sales		$6,683,321
Other revenue		543,723
Total revenue		$7,227,044
Operating and incidental expenses..		5,067,258
Net profits		$2 159,786
Deduct:—		
Bond interest	$ 5,347	
Dividends paid	1,464,388	
		$1,469,735
Surplus for year		$ 690,051

During the year the company sold 51,749,233 pounds of copper at a net price of 12.915 cents, netting $6,683,321; 20,862 ounces of gold, netting $417,247, and 198,943 ounces of silver, netting $102,511.

DENIAL IN ANSWER.

Denial of every allegation contained in the bill of complaint filed at Baltimore by Ferdinand C. Latrobe and John C. Shane against Dietrich Bros., growing out of the sale of the Baltimore Foundry Co. to Messrs. Latrobe and Shane, has been made in the answer of Dietrich Bros. The latter declare that not in a single instance was misrepresentation used in the sale of the foundry company's stock to Messrs. Latrobe and Shane.

AMERICAN IRON & STEEL MFG. CO.'S ANNUAL REPORT.

The report of the American Iron & Steel Mfg. Co., Lebanon, Pa., gives the following figures for the fiscal year ending Dec. 31, with which comparisons are made:

Assets:—	Dec. 31, 09	Dec. 31, 08
Cash	$ 596,101	$1,489,351
Accounts and bills rec'd.	684,855	592,060
Inventory	2,143,183	1,560,005
Real estate pl. and equip.	4,870,166	4,729,278
Insurance and taxes unexpired value.....	7,300	5,887
Total	$8,301,608	$8,376,583
Liabilities:—		
Wages accrued not due.	$ 90,998	$ 69,957
Accounts payable.....	134,728	275 769
Preferred stock.....	3,000,000	3,000,000
Common stock.....	2,550,000	2,550,000
Undivided profits.....	2,525,881	2,480,855
Total	$8,301,608	$8,376,583

In the tenth annual report of the company, President James Lord says:

The depression in the industry, so apparent throughout 1908, continued during a portion of the past year, with a return to normal conditions as to output during the last half. Special dividends, amounting to $221,625, were paid during the year in addition to the regular dividends. Additions were made to plants and equipment amounting to $181,888. The allowance for depreciation of plants and machinery now amounts to $805,000. The losses from uncollectible accounts amounted during the year to 0.008 of 1 per cent.

LARGE BODY OF WABANA ORE PROVED UP.

As a result of active exploration work carried on of late by the Nova Scotia Steel & Coal Co., New Glasgow, N. S., in the Wabana (Newfoundland) district, a very large body of ore has been proved up in its outer submarine territory. The main slopes have been driven through the ore upwards of 1,650 feet beyond the outer boundary of this company, which has an arrangement whereby it operates through the holdings of the Dominion company. Diamond drill holes, extracting a 2½-inch core, have been driven down to the lower seams at four well separated points in this outer submarine territory and have shown up important ore areas, one of the seams being over 30 feet in thickness, with the ore running over 50 per cent.

The Nova Scotia company made complete deliveries on all its 1909 contracts with eastern furnaces in the United States before navigation closed. It is a matter of pride with this interest that, in its 15 years' experience as an ore shipper, it has never fallen down in any deliveries which it has undertaken. The export duty of 7½ cents per ton on all ores shipped out of Newfoundland, it is anticipated, will not interfere seriously with the movement to this country.

ANNUAL REPORT OF THE J. G. BRILL CO.

The report of the J. G. Brill Co., Philadelphia, for the year ending Dec. 31 last, shows that the value of the gross output of the five plants owned and operated by the company aggregated $4,261,204, an increase of $416,031 over the previous year, but a decrease from the output of 1907 and 1906. The following figures are shown in the report:

	1909.	1908.
Total sales	$4,261,204	$3,845,173
Operating expenses	4,075,979	3,656 343
Manufacturing profit	$ 185,225	$ 188,830
Other income	52,909	.....
Total net income	$ 238,134	$ 188,830
Reserve for depreciation	107,350	98,089
Net profits	$ 130,784	$ 90,740
Previous surplus	1,339 449	1,699,953
Total surplus	$1,470,233	$1,790,693
Less adjustments	64,629	30,644
Balance	$1,405,604	$1,760,049
Dividends	320,600	420,600
Surplus	$1,085,004	$1,339,449

The combined balance sheet of The J. G. Brill Co. and subsidiary companies as of Dec. 31 compare as follows:

Assets:—	Dec. 31, '09.	Dec. 31, '08.
Cost of properties	$ 8,468,673	$ 8,297,147
Mat., raw, in process and fin.	1,980,840	1,510,215
Investments	90,431	69,266
Bills and accts. rec.	1,319,479	1,442,489
Cash	193,092	439,074
Total	$12,052,517	$11,758,193
Liabilities:—		
Preferred stock	$ 4,580,000	$ 4,580,000
Common stock	5,000,000	5,000,000
Bonds (John Stephenson Co.)	400,000	400,000
Bills and accts. pay.	987,512	438 743
Surplus account	1,085,006	1,339,449
Total	$12,052,517	$11,758,193

President James Rawle said in his report, among other things:

The result of the operation of the Brill plant for the year 1909, in spite of an output far below normal, and in spite of the very low prices at which work necessarily had to be taken in the latter part of 1908 and during most of 1909, showed a substantial profit. The net result of the operation of the subsidiary companies showed a loss. Of the four subsidiary companies, one, the Stephenson plant, was closed during almost the entire year; the others were operated at only a small part of their capacity.

The physical condition of the plants is excellent and they are all well equipped in organization to handle the increased business which they now have on their books. The excellent financial condition of your company, as indicated by the annual statement, needs no comment. I am glad to say the outlook for profitable work is much improved. On Dec. 31, 1908, the combined work on hand amounted to $1,717,338. On Feb. 1, 1910, the combined companies had orders on the books and in process of completion amounting to $2,755,776, an increase of $1,038,438.

Three directors, whose terms expired, were re-elected for three years: James Rawle, Samuel M. Curwen and Edward Brill.

PIPE SHIPMENTS

Of Reading Iron Co. Have Improved —Temple Furnace Blown Out.

Reading, Pa., Feb. 10.

The Reading Iron Co. is shipping daily from its tube mills in this city from 20 to 30 carloads of pipe of various sizes. For some time the shipments have shown a steady improvement. Considerable product is going to Cuba and Mexico. The Scott works have been busy for some time on cotton presses and sugar mills. A big sugar mill has just been sent to Bayou Gould, La., and another will be ready to send to Porto Rico in several months. The mill sent to Louisiana weighed in the neighborhood of 450,000 pounds, and that for Porto Rico is a 280,000-pound affair.

The Temple blast furnace, which has been in operation for 16½ months, went out of blast today for repairs, which will occupy about six weeks. During the time it has been in operation, it has produced nearly 90,000 tons of pig iron.

TITAN STEEL CASTING CO. SUCCEEDS B. ATHA & CO.

The Titan Steel Casting Co., Newark, N. J., whose incorporation with a capital stock of $1,000,000 was recently noted, has purchased and succeeds to the business of Benjamin Atha & Co. The officers of the Titan company are: President, Benjamin Atha; vice president and general manager, Louis A. Shepard; treasurer, Henry G. Atha; secretary, C. W. Owston, Jr. The Titan company will continue to operate the plant as in the past, giving special attention to the production of cast steel bolsters, manganese steel railway motor gears and pinions, and other car and locomotive castings.

NEW ROLLING MILL IN NOVA SCOTIA.

The plans of a new $4,000,000 rolling mill company, which proposes to construct a plant at Sydney, Nova Scotia, are described in a report from United States Consul John E. Kehl. Construction is to be begun early in February. The agreement with the city is that the capacity will be at least 40,000 tons of finished material annually, consisting of bar steel, angle bar, galvanized wire and nails, tie plates, railway spikes, track bolts, etc.

PENNSYLVANIA RAILROAD STEEL EQUIPMENT.

What is probably the largest steel passenger car equipment owned by any railroad in the world is that of the Pennsylvania Railroad which, with the cars just completed and those in course of construction, has 630 all-steel passenger cars. With this large number of steel cars, the Pennsylvania Railroad is now to start the operation of all-steel passenger trains on some of its lines of densest traffic.

The railroad in November, 1906, ordered 100 all-steel passenger cars. Since that time additional orders have been placed and there are now in service on the company's lines 245 coaches, 10 dining cars, 21 combination passenger and baggage cars, 29 baggage cars, 18 postal cars, and one company car; a total of 324 cars. In course of construction, there are 140 coaches, 34 dining cars, 48 combination passenger and baggage cars, 4 baggage cars, 42 postal cars, 27 mail storage cars, and 11 baggage and mail cars.

The Pullman Co., at the instance of the Pennsylvania railroad, has for the past four years been at work designing all-steel parlor and sleeping cars. Some 500 such cars are shortly to be completely and placed in service on the Pennsylvania railroad.

With the all-steel passenger equipment now in service or on order, and some 250 steel cars to be ordered on the 1910 passenger equipment program, the Pennsylvania railroad will, in a short time, have in service about 900 of its own steel passenger cars, and 500 steel Pullman cars.

WILL START OPERATING VERONA PLANT SOON.

Arrangements are being made by the Standard Steel Car Co. to place its new steel castings plant at Verona, Pa., in full operation about March 1. This plant was purchased several days ago at a receivers' sale, conducted by the Commonwealth Trust Co., of Pittsburg, and was formerly owned by the General Castings Co.

While the Standard Steel Car Co.'s chief object in taking over the Verona plant was to make its own steel castings for the works at Butler, Pa., and other points, announcement is made that the company will be in position to accept outside business. The Verona plant has a capacity of about 1,200 tons a month. For the last several years the Standard Steel Car Co. has been a heavy purchaser of steel castings and the announcement of its purchase of the General Castings Co.'s plant came as a surprise to the general trade.

AMONG MACHINERY MAKERS.

PITTSBURG.

Westinghouse Air Brake Has Good Month.—Railroad Orders are Appearing.

Office of THE IRON TRADE REVIEW, 510 Park Building, Feb. 15.

Inquiries for machinery involving large tonnage are reported by Pittsburg makers, although the volume of orders being booked is not as large as a few months ago. Some of the contracts which were to have been placed this week are still pending, and prospective buyers are showing some hesitancy in placing their tonnage. Some of them say that on account of the continued heavy snowstorms and unfavorable weather conditions some of the preliminary construction work, which is usually started about March 1, will be held up, and for this reason there is no particular hurry in making deliveries for such work. Machinery makers, with but few exceptions, are well pleased with existing conditions. Their plants are working full time on orders received some time ago and specifications continue heavy. The announcement of the Westinghouse Airbrake Co., that the January orders aggregating two million dollars was the largest in the forty years of the life of that company, is gratifying to both buyers and sellers. Other manufacturing concerns report similar conditions at their plants. At the present time the Wilmerding works of the Westinghouse Airbrake Co. are making heavier monthly shipments than ever before. The adoption of heavy steel freight cars generally to supplant light wooden cars now in service will require new and more costly apparatus for the safe operation of long freight trains, and officials of the Westinghouse interests are looking forward to a continuation of the present heavy buying.

The A. M. Byers Co., Pittsburg, is considering plans for extensions and improvements at its Girard, O., plant. It is not likely that plans for this work will be announced for a few weeks at least.

One of the features of the market during the last week is the fact that the railroads are sending out inquiries for machinery. The Baltimore & Ohio Railroad Co. has placed orders for machinery, tools, etc. for the shops on its various divisions, involving a large expenditure. The machinery will be distributed over the different divisions where its shops are located. The gradual increase in the number of heavy steel freight cars of greater capacity by the railroads generally has made it necessary to install heavier machinery in repair shops for making general repairs to rolling stock.

New machinery is being installed at the New Kensington, Pa., plant, formerly owned by the Harrold Foundry & Machine Co., which was purchased recently by the Pittsburg Sanitary Mfg. Co. About two months will be required to complete the work.

A charter has been granted at Charleston, W. Va., to the Packer Motor Car Co., of Pittsburg, with a capital stock of $100,000. The company will engage in the manufacture of motor trucks, automobiles and accessories. Among the incorporators are Albert H. Schenk, Wheeling; William Zoller, Edward K. Callahan, Pittsburg; James F. McGarry, East Liverpool, O., and George D. Pratt, Buffalo, N. Y.

The Pittsburg, Butler, Slippery Rock & Grove City Railway Co. (electric) has been organized to build a line between Butler, Pa., and Slippery Rock, Pa., a distance of twenty miles. Application for a charter will be made at once. The directors are: W. C. Thompson, J. A. Smith, Dr. W. C. McCandless and A. M. Reiber of Butler, and James C. Kerr of Slippery Rock. Mr. Thompson is president of the company, and F. E. Barrett, a Pittsburg engineer, has been employed to make final surveys for the new line. It is expected that work will be started in the spring.

NEW YORK.

Large Contracts Placed This Week.—Several Railroad Lists Pending.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., Feb. 15.

The award of several large lists for machine tools and miscellaneous equipment aggregating a valuation from $750,000 to $1,000,000 has made the past week a notable one in the machinery market. The largest assortment to be closed was that of the Bethlehem Steel Co. for the equipment requirements of its extensions at South Bethlehem, Pa., which will reach a total of probably $500,000. There are a large number of heavy types and special tools in this list to meet the buyer's shipbuilding requirements and considerable miscellaneous equipment. It is understood that the bulk of the standard tools was distributed among two New York houses and a Cincinnati maker, one of the former receiving the largest portion. Early deliveries are asked upon this work.

The Baltimore & Ohio railroad also placed its large list estimated at about $250,000 which is to cover extensive shop needs. This list embraces the usual line of railroad requirements. There appears to be a more general stir among the railroads with respect to their inquiries for machine tools but they are still very deliberate in putting their needs under contract. The Norfolk & Western and the Kansas City & Southern lists are still pending while in the west the Chicago, Burlington & Quincy and the Great Northern are still considering proposals upon their inquiries. The New York Central is sending out some inquiries.

Prospective car buying is a source of much anticipated business in the lines of equipment influenced by such demand. A number of the railroads are quietly taking protections upon air-brakes, malleables and other fittings before formally entering the market for cars and it is expected that 25,000 to 30,000 cars may be placed under contract in the near future. The Baltimore & Ohio railroad has recently been authorizing large expenditures for road, shop and rolling stock improvements and is looked upon as one of the largest prospective buyers. The Southern railroad also has large expenditures in the tentative stage. Car contracts let the past week have been more favorable, the Norfolk & Western having taken the largest number while the C., H. & D. also made important purchases.

Heavy tools which have not been especially active are showing some improvement and there is a moderately better inquiry going. Deliveries on these lines of equipment are obtainable quite readily because the makers are not so sold up as in some of the standard types. The automobile makers and the manufacturers affiliated with this industry continue to buy freely and apparently are enjoying a remarkable business activity. The single machine buying power of the situation is very favorable and the demand is well scattered.

It is very probable that announce-

ments of some important extensions of capacity to both plants will follow the construction of a hot metal bridge connecting the steel works of the Alan Wood Iron & Steel Co. at Ivy Rock, Pa., with the blast furnaces of the Richard Heckscher & Sons Co. of Swedeland, Pa. Plans for the bridge which will span the Schuylkill river are now being completed in Philadelphia and are expected to be carried forward at once.

The Board of Water Supply, New York, took bids Feb. 15 for the furnishing and installing of 20 5-foot by 15 foot sluice gates, twenty operating mechanisms, eight 66 inch stop-disk frames, four 66-inch stop-disks, and three sets of drive shafting for various structures along the line of the Catskill aqueduct at Mt. Vernon, Westchester county, and Brown's station, Ulster county, New York.

Unofficial announcement is made to the effect that rebuilding and re-equipping of the damaged portion of the works will be immediately done by the Westinghouse Electric & Mfg. Co. at its Boonton, N. J., plant. A heavy damage was recently incurred by fire.

Some repairs to equipment and probably some new purchases will be necessitated as a result of the fire at the blast furnace plant of the Delaware River Steel Co., at Chester, Pa. The principal damage was caused by the falling roof and walls of the dynamo room and blowing engine department. It is expected however that the resumption of the furnace, which is now banked, will not be long delayed.

New extensions of industrial plants recently advanced to a definite stage through the awarding of construction contracts include those of the Reading Iron Co. at Reading, Pa., of the Erie Engine Works, Erie, Pa., and of the Otis Elevator Co. at Buffalo. The Reading Iron Co. is proceeding with the building of a new puddling mill; the Erie Engine Works with an entirely new plant while the Otis Elevator Co. will make important extensions at Buffalo including a large foundry.

Considerable new equipment will be required for new car shops of the Hudson & Manhattan Railroad Co., to be erected at Jersey City. The construction of the new shops is now being figured upon by builders and fabricating interests.

The General Electric Co. is now erecting a new centrifugal blowing engine at the plant of the Empire Steel & Iron Co., at Catasauqua, Pa., and expects to have it in operation in about six weeks.

CINCINNATI.

Continued Demand for Special Machinery is Feature of Situation.

Office of THE IRON TRADE REVIEW, Feb. 15.

The week now closing, shows no indication of any material change in the machine tool situation, but that conditions generally are about the same as they have been for the past month or two. The one feature of the situation perhaps that stands out the most prominently and clearly is the continued activity along the line of special machinery. Builders of this class of tools continue to receive a satisfactory volume of business that is said to come from various sections of the country and is largely attributable to the enormous demand from automobile industries. The demand for these tools is such that many of the concerns are taxed to their utmost capacity to make required deliveries. Builders of wood-working machinery report a slight improvement in their particular line, with demand slightly more encouraging. They feel quite confident that the tide has turned and that business will continue steadily to improve. The milling machine builders continue to be rushed with orders and show no signs of any change, as new orders are coming forward in a regular and satisfactory manner. Lathe business and shaper concerns apparently have made a slight step forward, reports indicating a little stronger tone to inquiries. Structural manufacturers report only a fair demand for structural and ornamental iron, as there is little doing in the way of new specifications that will require any considerable tonnage.

Schumacher & Boye, builders of engine lathes, report a fairly active condition of trade. Inquiries are somewhat better, and the situation appears to be steadily improving.

The Victor Lamp Co., manufacturers of automobile lamps is erecting a 4-story brick and steel building on Spring Grove avenue, this city. This building will be equipped with the latest and most improved machinery and equipment and will probably be ready for occupancy within the next two or three months.

The Union Iron Works Co. advises there is a fair demand for its product. It is having considerable trouble at times in receiving material from mills, from three to four months behind in deliveries. It has the contract for the ornamental iron work for the new Woodward high school and also the Victor Lamp Co.'s plant.

The Rahn-Carpenter Co. in line with the other tool builders of the city is fairly busy. It, however anticipates renewed activity a little later and looks for a fairly normal year to develop.

CONTINENTAL TRADE

Appears Satisfactory — German Steel Syndicate Raised Prices.

Respecting trade conditions in Germany and Belgium, The Ironmonger, of London, in its issue of Jan. 29, says:

The Stahlwerks Verband reports the home market for semi-manufactures as being satisfactory, while prices in foreign markets are dearer. The Verband has raised its quotations for semi-manufactures by 5m per ton. Contracts with the administration of the State railways for permanent-way material have in a number of cases been prolonged till 1912; but the orders for 1910 are for the most part less extensive than those placed for 1909. Export business in vignole rails is active, and some of the contracts placed are said to extend for a period of years; while in mining rails yearly contracts have been concluded with many of the Rhenish Westphalian and Upper Silesian undertakings. The demand for shapes is improving, and prices for the second quarter will be fixed at the next general meeting of the Verband.

There is a tendency to over-estimate the extent of the industrial improvement. The recently constituted association of Luxemburg-Lorraine pig iron merchants evidently inclines towards a higher price policy, which, if pushed too far, will give an opening for increased English competition in pig iron. It is to a large extent a matter of indifference to the merchant firms whether they sell German or foreign pig iron, and it is a noticeable fact that up to the present the membership of the new convention is practically confined to merchant firms not allied with producing interests. Further negotiations are being conducted with the view of inducing merchant outsiders to agree to combined action regarding pig iron sales.

In Belgium the rise continues in every branch of the iron and steel trade, the situation on 'Change at Brussels on Wednesday being particularly firm. The principal steel plants have sold their entire production for many months and have retired from the open market. Those few who are still quoting for merchant steel bars do not name anything below £5 10s f. o. b. German makers are quoting 110 marks per ton, and have already sold quantities up to the end of June at this figure. The dates for deliveries have become extremely long, eight to ten weeks being regularly demanded, and certain German works refuse to deliver before next June. In iron bars orders are regular and four to six weeks are usually asked for delivery.

VESSEL MERGER

May be Followed by Other Consolidations of More Importance.

The indications are that the Etna Steamship Co. and the Cleveland Steamship Co., both managed by Capt. John Mitchell, will be merged into a single company and will be operated without insurance during 1910. This venture will be watched with considerable interest by vessel owners who are inclined to favor it and there is likelihood that next year nearly all of the steel, ore and coal carriers that are unincumbered may be merged under one management to operate without insurance. The insurance rates for 1910 have not been fixed as yet, but an advance in the rate is expected. The proposed Canadian merger appears to be making better progress. Information is to the effect that James Playfair, of Midland, Ont., has secured an option on the fleet of the Inland Navigation Co. for the purpose of operating it in conjunction with the fleet of the Midland Navigation Co.

There is no change in the freight market. Nothing has been done as yet to fix the coal rate, except for the opening trip. Ore, especially the better grades, is moving quite freely from Lake Erie docks to furnaces.

CHICAGO PNEUMATIC TOOL CO.'S ANNUAL REPORT.

The report of the Chicago Pneumatic Tool Co. for the year ending Dec. 31 last, shows that the net profits in the first half of the year were $186,468, and in the last six months were almost double, $372,459. The following statement of earnings and expenses is given with comparisons with those of the preceding year:

	1909.	1908.
Profits for year	$ 558,927	$ 289,625
Depreciation, repairs and renewals	134,573	92,089
Written off for developing	5,594	6,973
Balance	$ 418,759	$ 190,563
Bond interest	115,000	115,000
Interest on mortgage assumed	3,150	4,050
Sinking fund installment	50,000	50,000
Surplus for year	$ 250,000	$ 21,513
Previous surplus	821,564	1,008,074
Total surplus	$1,072,174	$1,029,587
Depreciation, foreign plants	.....	122,764
Depreciation of inventories, extra legal expenses, etc.	.....	85,259
Final surplus	$1,072,174	$ 821,564

President W. O. Duntley in his report, said:

The indebtedness of the company (exclusive of the sinking fund installment of the general mortgage indebtedness) has been reduced during the fiscal year by the amount of $147,101. There exist no contingent liabilities for account of bills discounted, nor guarantees to banks for the account of the foreign subsidiary companies. The present financial condition of the company is on a substantial basis affording sufficient working capital for present and prospective requirements. The physical condition of the different plants has been kept at its usual high standard, the sum of $134,573 having been appropriated to cover the items for depreciation, maintenance, repairs and renewals.

The general depression in business which occurred during the latter period of 1907, and prevailed during 1908, continued to affect the business during the early part of 1909. The activity during the later half of the year and the orders already on hand reasonably assure a larger volume of business for 1910. At the present time virtually all the plants are being operated to their full capacity. The foreign subsidiary companies are in a prosperous condition and are gradually developing an increased demand for our product in their respective territories.

LARGE ADDITION

Will be Built by the Canadian General Electric Co.

Toronto, Feb. 14.

Frederic Nicholls, general manager of the Canadian General Electric Co., of Toronto and Peterborough, Ont., states that on account of the great expansion of the company's business, a considerable enlargement of its plant has been determined on. The company will spend between $250,000 and $750,000 on new buildings and equipment, but the details have not yet been arranged. There are on hand at present orders for machines for a total of 100,000 horsepower.

An extension of the ornamental iron department of the Canada Foundry is in course of construction, which will cost about $50,000 and increase the capacity of the department by 25 to 30 per cent. It will be completed about the end of March, when the present force of 225 men will be increased to about 300.

The Vulcan Iron Works, of Winnipeg, has purchased 20 acres adjoining the Dominion Bridge Co.'s works for $60,000, in order to provide for future extensions.

The Bass Foundry & Machine Co., Ft. Wayne, Ind., is overhauling the forge shop, which was damaged by fire in December. The roof is being replaced and new ventilators built. Fire apparatus for better protection of the plant is being liberally installed.

EASTERN VIEW

Of the Foreign Ore Situation—Belief That All Will be Well.

Reading, Pa., Feb. 14.

Efforts of the Cleveland and Lake ore interests to forestall the markets pertaining to the importations of foreign ores into the Eastern districts, including the Reading and Schuylkill and Lehigh county furnace operations, are not taken seriously by well-informed men here.

They declare that they were bridged over during the depression by the buying of foreign ores and when once started they continued to buy, almost ignoring the lake ores in their furnace mixtures. The Reading Iron Co. is using a great amount of Spanish and Swedish ores. A tariff reduction of from 40 to 15 cents a ton has been partly responsible for opening a field for trade in the eastern district and it has also provided a large freight trade for the Reading railway through its docks at Port Richmond, Philadelphia, and Sparrows Point, Md., where large improvements are now being made.

When the lake ore interests felt this trade in the east slipping away from them, they began to get busy in an effort to regain their footing with the trade, resulting in the present scare, which virtually is to the effect that buyers of foreign ore will not receive their 1910 deliveries. This was supposed to have been actuated by the lake ore concerns and is of vital importance to the buyers and the workers as well of the furnace districts in this vicinity.

Albert Broden, superintendent of furnaces of the Reading Iron Co., and one of the best versed men on this subject in the east, said today that there was no fear that every pound of ore bargained for by the Eastern buyer would not be delivered. He thinks that there will be no difficulty for the buyers to receive all of the ore sold in this country for 1910 and at the same time expresses the opinion of men high in the iron industry.

"If foreign ore could not compete in this country," said Mr. Broden, "and iron trade conditions were such as they are at present, there would be some cause for alarm, but there are indications of plenty of ore, and plenty of activity in the iron industry for 1910."

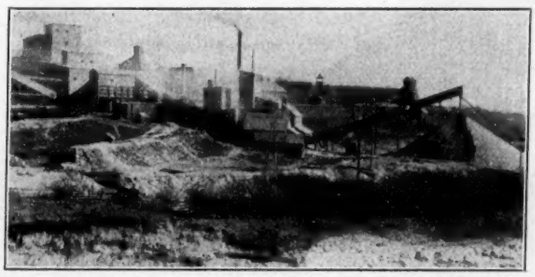
The Thayer Foundry Co., Atchison, Kas., is preparing to start work on its proposed new foundry on Commercial street.

GREAT POSSIBILITIES OF IRON ORES OF NEW YORK[1]

Brief Description of the Various Properties — President Witherbee as a Leader in Developing Mines and Overcoming Difficulties—Where Purest Ore Is Found—Cost Factor

By S. Norton.[2]

It would seem to me, after an experience of nearly 20 years in the mining and using of the ores of New York state, that the resources of the state as an iron ore producing section of this great nation, are little understood and little appreciated. While the ores of this state have been mined for a great many years and some of the enterprises in the iron industry originated in New York state, the discovery of large masses of ore in the lake regions of the west called the attention of the great iron masters away from the eastern iron ore deposits. The location of large quantities of high grade metallurgical fuel in the vicinity of Pittsburg, in conjunction with the lake ores, has built up an iron and steel industry in that vicinity, which is simply the wonder of the world. But at present, we read a great deal in the papers in regard to the conservation of the natural resources of this country. Therefore, our attention is called to the resources of this old and settled district in the east, as regards its future ability to supply the needs of the people living in the vicinity, with iron and steel in their various forms sufficient for the needs of modern civilization.



No. 1 and No. 2 Mills.

View of Mineville.

Geographically the iron ores of New York state are distributed from the southern part of the state, across the eastern end up to almost the northern boundary line, between Canada and New York. There is also a general extension through the central part of the state as far as the Genesee river.

Ore on Staten Island.

Let us begin descriptively then with the deposit of ore on Staten Island, which, while small, at one time produced quite a tonnage of ore in comparison to the needs of the country. We find there a brown hematite deposit, which is simply a surface deposit formed in some manner, on an underlying serpentine rock. This is very similar in appearance and formation to the large deposits of ore which are now being worked on the northern coast of Cuba. I mention this deposit more as a geological curiosity than for its commercial value.

As we come north in Orange county, where it borders on the iron ore regions of New Jersey, we find a large area of the old gneissoid rocks which are ore bearing and carry more or less deposits of magnetite. These gneiss rocks extend across the New Jersey border through Orange county, and then cross the Hudson river at Fort Montgomery and Peekskill and so on through Putnam county. These deposits have been worked for a great many years in various places. The Sterling mine at Lakeville in Orange county and the Forest of Dean mine in the vicinity of the Hudson river are two very old and well known deposits of magnetite which have been worked for years.

Crossing the Hudson river and back of Peekskill, there are large deposits of iron ore bearing rocks, which are peculiar to their location. The iron in these rocks is in two forms; magnetite, and an aluminate of iron. Some years ago, I experimented with this ore by magnetic separation, and separated the magnetite from the aluminate of iron, sending the aluminate tailings to Ladoux & Co., who analyzed and classified the tailings from this material as equal in hardness and quality to the best Turkish emery. I do not know that anything has ever been done in regard to this matter and only speak of it as one of the interesting possibilities in regard to the locality. Farther east on this same range, there have been worked the Mahopac mines, and also the Tilly Foster, and there are said to be large deposits of lean ore in the vicinity of Brewster. And particularly in regard to this region, it is said that the ores so far as they have been worked, west of the Hudson river, are comparatively high in phosphorus, while the ores that have been worked east of the Hudson, have been low in phosphorus and were sold and used in the manufacture of Bessemer steel.

This range covers quite a large area, but has never been exhaustively examined as regards its ability to produce ore with modern machinery and under modern conditions, but undoubtedly some time in the future, if the price of iron ore will warrant, there will be more or less ore mined from this range. North of Putnam county in the counties of Dutchess and Columbia, scattered through the Harlem valley and also the west slope of the Winchell mountains for a number of miles, there are large, well known and well defined deposits of brown hema-

[1]An address delivered before the "Society of Engineers of Eastern New York," at Troy, N. Y., Feb. 9, 1910.

[2]General Manager, Witherbee, Sherman & Co., Inc., Mineville, Essex county, New York.

tite ore, which have been worked more or less for a great many years. This ore is a hydrated sesquioxide of iron, and is deposited, as a rule, between the slates and the lime stone, and as at a great many points carbonate of iron has been found mixed with the ore, it is reasonable to suppose that this ore has been formed by some process of precipitation. These deposits are well defined and there is no doubt in regard to the geographical extent. There is also no doubt in regard to the quality of the iron which has been made from the brown hematite. In fact, the very strongest car wheel iron and the iron which today stands higher than any other in the market of the world is what is known as Salisbury car wheel iron.

Development Is Impeded.

In past years, the draw back to this district has been its undeveloped transportation facilities, as it was impossible to reach consuming interests with any reasonable freight rate. The physical appearance of this deposit also precludes the possibility of what might be caled cheap mining. Very few, if any, of these deposits are of reasonable extent to be worked to any great depth as open cut propositions. The ore is deposited in masses of ocher clay and it is necessary to wash all of the material so as to free it from its impurities. The great body of this ore will have to eventually be recovered by some method of underground working; some modification of what is known as the "slicing and caving system" will necessarily have to be used to recover these ores. While these ores have been worked for so many years, there is not, to my knowledge, any single deposit which has ever shown any sign of having reached the bottom of the formation. The tonnage of ore from this region, if the price would warrant, could be made quite an important matter in the iron industry of the state. There would be no trouble so far as the quantity would be concerned in producing from 600,000 to 800,000 tons of ore per year, and this ore mixed with the magnetites of the state in ordinary coke blast furnace will make a pig iron which, for the manufacture of ordinary run of castings and especially for stove plates and similar castings which require strength, has no superior in the world. And it is certainly not unreasonable to suppose that some time these deposits of iron will be worked, and that physical difficulties which now surround the commercial working of these deposits will be overcome by the progressive young engineers who are coming on the stage to take the place of the old fogies who are passing away.

The Clinton Ore.

Leaving the brown hematite, the next group of ores, which demand our attention, is what is known as the "Clinton Ore," which is a red hematite and has been mined at a number of points from Utica west as far as the Genesee river. Geological research and examination have shown this to be practically a continuous sheet of ore for at least 150 miles, and as the central part of New York sloping to the south is an unbroken plain and not crossed by any faults or breaks that are extensive, we have every reason to believe that there are hundreds of square miles of territory in this state which are underlaid with this deposit of red hematite ore. This deposit so far has never proved to be of any great thickness, but the acreage covered is so large that the probabilities are great that there will be found within this area many basins where the ore may thicken to a workable extent even at present prices of ore. I believe it is not at all visionary to suppose that in some future time this body of Clinton ore will produce a large quantity of the iron which will be required to supply the needs of the inhabitants of this state. This belief is made stronger by my experience in the anthracite coal regions of Pennsylvania. Forty years ago, it was thought impossible to mine even a 4-foot vein of coal at a profit and today veins 2 feet in thickness are being mined in this same region. It is, therefore, reasonable to suppose that the young engineers, who are coming on the stage of life, will have brains enough to devise methods whereby even these thin deposits of ore, having extensive areas, nearly level, will be mined at a cost which will make them of commercial value.

The Potsdam Deposit.

The next deposit to demand our attention is the Potsdam, situated in St. Lawrence county. These ores have been worked extensively and have never, to my knowledge, been prospected as they should be. There are large bodies of ore there, which at some future time can be used for the needs of the people of the state of New York in conjunction with the magnetic ores, which will be won from the Adirondack mineral bearing rock.

Outcrop at No. 21 Mine.

The Adirondack Region.

We now come to the Adirondack region, which we will divide for convenience into four different fields. On the western slope of the Adirondacks, there are a number of deposits which, while they are low in iron, are at the surface and can be mined by simply quarrying methods. They are today being operated, and can be made to produce a large quantity of ore running 62 or 63 per cent in iron. Unfortunately, most of the ore on the western

slope carries more or less sulphur, and at the same time has a very fine crystalline structure. Therefore, it requires fine grinding before the magnetite can be separated from the gangue to prepare it for the furnace. Still the deposits are very large and undoubtedly the difficulties can be overcome by energy and technical skill.

The second field comprises the central part of the Adirondack mountains, where there are large areas of what are known as "Gabbro Rocks." These gabbro rocks carry more or less deposits of iron ore, which investigation has shown to be a mixture of magnetite and ilmenite. It has been proven conclusively that the ilmenite can be eliminated by magnetic separation to such a point that these ores can be utilized in the blast furnace. Furthermore, it has also been demonstrated in the past few months by the electric furnace that the ilmenite in the future will have a value fully as great as the magnetite in this ore, because the effect of titanium on steel has been proven to be so advantageous that it certainly will be utilized in producing a steel suitable to stand up under the tremendous traffic of the modern railroad. All that is needed is to further perfect the process of smelting the ore so that the titanium of the ilmenite is carried into the finished steel instead of going off in the slag. Then the titanium instead of lessening the value of the ore will be one of its greatest advantages.

The largest deposit of this material is near Lake Sanford, where there are millions of tons, which are only waiting the means of transportation to become a factor in the iron and steel business.

On the northern slope of the Adirondacks, there are numerous deposits of magnetite lean in iron so far as the natural deposits are concerned, but which have the special property of being extremely low in phosphorus. And while these ores probably never will be won at a low cost, the ore which is finally shipped from this region, after having been treated by magnetic separation, is probably the purest ore of iron, and freest from deleterious materials of any ore in the world, and will be used in the manufacture of high grade specialties which the future will require.

Activity at Port Henry.

We now come to the eastern slope of the Adirondack mountains bordering on Lake Champlain, which is probably the best known iron ore mining district in the east. Port Henry enjoys the distinction, according to high authority in railroad affairs, of originating more tons of freight for the railroad traffic than any other place in the state. Here from a group of mines in a small area have been mined large quantities of ore for many years. The area controlled by the largest company, Witherbee, Sherman & Co., is about 15,000 acres. After all these years and the shipment from this district of from 15 to 16 millions of tons, the greater part of the area remains undeveloped. The difficulties which confronted the owners of this property a few years ago were enough to have discouraged any one excepting the man who at that time passed to the head of this enterprise, F. S. Witherbee, president of Witherbee, Sherman & Co., to whom can not be given too much credit for the energy with which he has met, for the past years, one difficulty after another until today there is situated on the shores of Lake Champlain, the largest iron ore mining enterprise in the east. Furthermore it is also the most up-to-date and best equipped iron ore mine today in the world. The methods which have been worked out for overcoming the difficulties incident to high phosphorus ore, and also to successfully treat low grade, lean ore, have been so satisfactory that today these mines and mills are visited by engineers of world wide reputation, not only from this country but also from England, Germany and Sweden, that they might see how the work was carried on. These ores at Mineville at the present time are being handled in quantities which are much greater than the past, and at the same time the prospecting has been kept in advance of the workings, so that while in the last few years the tonnage has been four times what it used to be, the amount of ore in sight has kept pace with the increased tonnage.

There is one more point in regard to the great Adirondack magnetite formation to which I wish to call your attention. The fact is this; in the Great Lakes region there are large masses of lean hematite ores which are no more or less than silicates of iron and alumina, or in other words they are chemical combinations of these minerals. In the Adirondacks, while the ore may be lean, so far as the analysis would show, the iron is scattered in crystals of pure magnetite through the gangue and when recovered is a pure oxide of iron. Therefore, in the great future the resources of the Adirondack region and its ability to produce tonnage of a high grade 60 to 65 per cent iron ore, simply depends upon what the market value of the ore may be and how many tons of lean ore it is possible to grind up to recover the magnetite. If what I have seen in the past may be repeated in the future, and pig iron should bring $30 a ton, which would mean practically about $9.00 a ton for the ore, there is enough crude material, which at that figure, could be used, to produce from the Adirondack region alone more 60 per cent ore than the whole estimated ore reserves at present known in this United States.

It is easily seen by what has been stated above that the whole subject of the iron ores of New York state is

Loading a Car.

one that no one man, nor no one generation, is going to see completely worked out in its technical and commercial details, but there is one thing positive and certain that the state of New York has within its own borders enough iron ore to supply the needs of its people for years to come.

PACKAGE FREIGHTER RELEASED.

The package freighter Wissahickon, which went ashore on Outer Duck Island, Lake Huron, Dec. 12, has been released and is now safe in Duck Island harbor with the lighter Reliance alongside. The tugs General and Thomson, which pulled her off, have returned to Detour. Capt. Alex Cunning endeavored to reach Outer Duck Island on the wrecker Favorite, but was unable to break through the ice at the mouth of the Detroit river. After returning to Cleveland with the Favorite, he went by rail to Sault Ste. Marie and from there to Outer Duck on a tug. It was necessary to lighter about 2,300 tons before the Wissahickon could be pulled off. The contract for releasing this steamer calls for her delivery at Milwaukee, but no attempt will be made to reach that port until the ice is out of the straits.

SHIPPING COPPER BY RAIL.

The feature of the Lake Superior metal situation is the great volume of refined copper being shipped daily at this season of the year, says *The Mining World*. The close of navigation found metal stocks well under normal and those conditions are being maintained by the present heavy rail shipments. The total tonnage shipped during December was the greatest recorded in years, and it is a noteworthy fact that the bulk of the metal was consigned to the brass and wire manufactories of the Connecticut valley and New York and New Jersey points. Very little was consigned to seaboard, an indication that so far as Lake copper is concerned domestic consumption of the metal has greatly increased. It is rather unusual to see the several smelter yards so free of the metal as they are at the present time.

BUILDING LARGE TANKS.

The Risdon Iron & Locomotive Works is building 18 filter tanks weighing 25 tons each, or an aggregate of 450 tons, for the California-Hawaiian Sugar Refining Co., of Crockett, a manufacturing town near San Francisco. The tanks are of extraordinary size for that locality. At the sugar refinery they will be set five feet above the ground on steel girders in two rows of nine each.

TARIFF FACTS

Being Carefully Weighed by President Taft—Question as to Discrimination.

Office of THE IRON TRADE REVIEW, Post Bldg., Washington, D. C., Feb. 15.

Some of the facts brought out in connection with the international trade of the United States during the past year, promise to engage the thoughtful attention of manufacturers and business men generally. The reason is that these facts have a direct bearing upon the application of the new tariff law. First, more than a half of the merchandise imported under the new tariff law, which covered about one-half of the importations during the past year, came in free of duty. This is the first time in many years that this result followed our foreign purchases. There has been a steady growth in the volume of our imports free of duty since August last, and at the close of December it is shown by the government figures that 56 per cent of our imports came in free of duty.

The second proposition which is causing the tariff makers in congress and the heads of the executive departments to pause and reflect, is the fact that the increase in imports of finished and manufactured goods during the past year over the previous year were more than $60,000,000 worth. At the same time, the exports of finished and manufactured articles increased only $22,000,000 worth. This is the first time in recent years that the growth in the volume of imported manufactures has exceeded the growth in the volume of exported manufactures.

These facts are having considerable weight with the government officials who were engaged in studying our foreign trade relations in connection with the duty they have in hand of advising President Taft regarding the course which he should pursue in imposing the maximum and minimum duties against the trade of foreign countries under the discrimination provisions of the new tariff law.

The work President Taft has in hand of determining to what extent the minimum tariff rates of the United States shall be extended to foreign countries, has proceeded rapidly during the past few days. Formal announcements have already been made of the intention to recognize about a dozen leading commercial nations as being entitled to the minimum rates of the new tariff.

The issue still appears to be complicated with respect to a few of the nations, including France and Canada. Some of the questions that have arisen in the negotiations with all the countries remain open to some extent with respect to a few countries, notably Germany, the Netherlands, Belgium, and Denmark. The most important announcement made during the month is the practical closing of negotiations with Germany, whereby that country will obtain the minimum rates of our tariff in exchange for the minimum rates of the German tariff. Questions are still pending in regard to the meat regulations of Germany, and her treatment of certain imported and exported articles. These questions and others of similar character are to be adjusted through subsequent negotiations.

Most of the questions at issue turn upon the treatment by foreign countries of imports of raw materials and the exports of finished products. Apart from the issues raised as to German regulations regarding American meats, the pending problems involve the treatment through their tariffs and customs regulations by these countries of raw materials imported and finished products exported, and whether those laws and regulations are discriminatory. These constitute the main subjects open between this country and the leading European states.

SATISFACTORY INCREASE IN EARNINGS.

The annual report of the Wheeling Steel & Iron Co., Wheeling, W. Va., read at the annual meeting of the stockholders last week, shows a very satisfactory increase in net earnings over the previous year. An extra dividend of 2 per cent, payable Feb. 20, was declared. At the Benwood plant, a new building has been erected for storing pipe, and other improvements made to increase the capacity of the plant. All of the company's plants are now operating to capacity.

Swedish Electric Furnace.—The complete electrical plant for the new demonstrating furnace to be erected by the Jernkontoret, at the Trollhättan waterfalls has now been ordered from a Swedish electrical firm. The order comprises two single-phase oil transformers, each of 1,100 kilo-volt-amperes, fitted with Scott couplings. The energy from the power station at the waterfalls is to be transmitted in the form of three-phase alternating current, with a tension of 10,000 volts, to the transformers. The order also comprises the complete outfit for the switchboard, including all the necessary instruments.—*Iron and Coal Trades Journal.*

THE COST OF OPERATION OF MACHINE TOOLS

Notes on the Factors Entering Into the Question of Cost

A. G. Popcke.

In addition to the wages of the machinist, there are other hourly operating expenses which must be charged against each tool in a machine shop. These will be referred to in this article as machine-hour rates. They include a proportional share of the *general charges* and also specific charges relating to each specific tool. The conditions are somewhat similar to those encountered in central stations. Before competition was very great, it was considered sufficient to figure the cost of generating power from the amount of coal and water consumed, and the wages of the power house attendants. Many industrial plants of considerable size that generate their own power still use this method. Most central station managers, however, have found it necessary, as the demand for power increased and the business became more complicated, to figure more closely and to analyze more thoroughly, *all* their expenses, among which are interest and depreciation on the cost of all buildings and equipment, salaries of officials, engineering staff, clerks, miscellaneous office expenses and advertising charges.

General Charges.

In the machine shop these charges may be considered under three general heads—fixed charges, variable charges and salaries. They can be determined for a given shop at intervals of a month or more and then divided among the several machines. The best method of making this division depends on so many local conditions that no general rules can be given. If all the tools are doing work of the same general class and are in use approximately the same proportion of the total time, a part of the total general charge can be set off against each tool in proportion to the floor space occupied by both the tool and the material on which it works. The general charge against each tool continues whether the tool is operating or idle, and the method of dividing the general charges must always take this fact into consideration.

Fixed charges include interest, insurance, and taxes on the investment in buildings and auxiliary equipment, such as heating and ventilating systems, fire appliances, benches, cranes, etc. If a shop is rented, the rental must include the foregoing charges and an additional sum for profits to the owner.

Variable charges include repairs on buildings and equipment to maintain the efficiency, losses due to breakage, defective material, defective design, workmanship, etc.

Salaries include cost of management, superintendence, engineering and designing, clerical work, care of plant, miscellaneous labor, etc.

Specific Charges.

In addition to the foregoing general charges, the cost of operating a tool is affected by the following *specific charges* which can be determined for each tool:

Interest on the cost of the tool and its auxiliaries.

Depreciation of the tool and its auxiliaries.

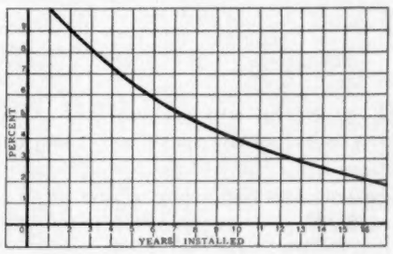


Fig. 1—Depreciation at 10 Per Cent Reducing Balance.

Cost of power consumed by the tool.

The interest on the cost of the tool is fairly taken at 6 per cent. A reasonable method of making allowance for depreciation, in most cases, is to allow 10 per cent of a reducing balance; that is, 10 per cent of the first cost is charged off the first year, then 10 per cent of the remaining cost the second year, and 10 per cent of that remainder the third year, etc. This method is based on the fact that the apparatus actually decreases in value year by year. Allowance for depreciation in any given year can be made by the aid of Fig. 1. This curve gives the per cent of the first cost corresponding each year to 10 per cent on the reduced balance. For example, the curve shows that the depreciation on a tool that has been in service five years will be 6.6 per cent of the original cost. If this cost was $3,800 the allowance for depreciation during the sixth year, according to the ten per cent reducing balance method, is $3,800 × 0.066 = $250.80. Since this amount is 10 per cent of the reduced cost the value of the tool at the end of the fifth year is $2,508.

Cost of Power.

Tools for special work which will be discontinued after a comparatively limited period depreciate in value much more rapidly than is indicated by the foregoing method; a special allowance, generally known as utility depreciation, should be made for such tools.

The cost of power for each tool can be obtained by ascertaining the power demand in kilowatts per hour and multiplying this number of power units by the cost per unit and the number of working hours. If power is generated under the shop management, its cost must be determined from the station records; if purchased, the contract price must be used. If the machines are equipped with individual motors records for each class of work may

TABLE I.—LIST OF GENERAL AND SPECIFIC CHARGES AGAINST MACHINE TOOLS.

General Charges Against Total Shop.	Charges Against Each Machine Tool.
Fixed Charges:	
Interest and depreciation on buildings and accessories.	Proportional share of total fixed charge.
Variable Charges:	
Repairs and renewals.	
General operating expenses.	Proportional share of total variable charge.
Salaries:	
Supervision.	
Engineering.	Proportional share of total salaries.
Clerical.	
	Interest on cost of tool.
	Depreciation on cost of tool.
	Cost of power for tool.

*Reprint from the *Electric Journal*.

easily be obtained by the use of graphic recording meters. These records will show what the standard conditions should be and what they actually are. Check records may be taken frequently to see that all machines are working at the desired efficiency.

Each machine may be considered as a manufacturing center and the general charge against it as rental. Each center receives its material from another, performs some work on it and passes it on with an added value to the center. This added value, less the general and specific charges, is the profit accruing to each center. Since the general charge is continuous, it is evident that each center must do more than enough work to meet this charge, otherwise it will show a loss; also it is evident that the more work there is done in each center, the greater the profit.

By determining the costs outlined in Table 1 and classifying them as in Table 2, improvements in operating conditions will suggest themselves and if put into effect, the operating costs can usually be reduced. The data in Table 2 was obtained by the aid of graphic recording meters in connection with motor-driven machine tools. The data in this table is typical of conditions in many large machine shops. The figures given indicate the following division of total operating charges:

Variable charges	from 50 to 55 per cent.
Salaries	from 25 to 30 per cent.
Interest on cost of machine tools	from 5 to 10 per cent.
Depreciation on cost of machine tools	from 5 to 10 per cent.
Fixed charges	3 per cent.
Power	1 per cent.

TABLE II.—MACHINE HOUR RATES—EXPRESSED IN DOLLARS.

Type of Machine.	Charges per hour in dollars. Fixed.	Variable.	Salaries.	Interest.	*Depreciation.	Power.	Total, or Mach-Hr. Rate.
Vertical Boring Mills—							
40 inches to 60 inches	0.02	0.25	0.15	0.05	0.05	0.01	0.53
72 inches to 100 inches	0.04	0.45	0.25	0.08	0.08	0.01	0.91
10 feet to 14 feet	0.05	0.80	0.40	0.15	0.15	0.02	1.57
16 feet to 24 feet Ext.	0.08	2.00	1.00	0.30	0.30	0.03	3.71
Av. percent of total	3	52	28	8	8	1	100
Radial Drills— 5 feet	0.02	0.30	0.20	0.03	0.03	0.01	0.59
Radial Drills—10 feet	0.04	0.60	0.35	0.09	0.09	0.01	1.18
Av. percent of total	3	51	31	7	7	1	100
Engine Lathes—30 inches to 40 inches	0.02	0.25	0.12	0.04	0.04	0.01	0.48
Engine Lathes—40 inches to 60 inches	0.03	0.50	0.25	0.10	0.10	0.01	0.99
Av. percent of total	3	51	25	10	10	1	100
Planers—36 inches to 56 inches	0.04	0.55	0.30	0.05	0.05	0.01	1.00
Planers— 7 feet to 10 feet	0.06	1.10	0.60	0.15	0.15	0.02	2.08
Planers—12 feet to 14 feet	0.13	2.60	1.40	0.25	0.25	0.03	4.68
Av. per cent of total	3	55	30	5.5	5.5	1	100

*It is assumed that machines have been installed six years, so that the depreciation is six per cent on basis of ten per cent reducing balance. See Fig. 1.

Table 2 shows no machine-hour rates less than 48 cents an hour. Usually the machine-hour rates are at least 50 per cent greater than the operator's pay. It is perfectly evident from this that consideration of the operator's pay alone gives results far from correct, when the total cost of operation is under consideration.

In some cases it has been found that the introduction of individual motor drive has resulted in an increase of 20 per cent in production as well as making it possible to obtain accurate data by means of graphic recording wattmeters. To obtain such results, however, the motors must be properly applied and the method of control must be suitable for the service. Machine tool builders are generally prepared to equip old line-shaft driven tools with additional parts to fit them for motor drive; with few exceptions the advantages of motor drive for such machines, if in good condition, are nearly as great as for new machines. Heavier cuts are possible with motors than with line shaft drive, but the old tools are not usually strong enough to permit full advantage of this possibility.

The saving to be made by installing an individual motor may be illustrated by assuming that the 60-inch boring mill cited in Table II was shaft driven. The machine-hour rate is $0.53, and if the workman receives $0.35 per hour, the total operating cost is $0.88 per hour, or $2,470 per year of 2,808 hours (54 hours per week). This machine if properly equipped for motor drive will give at least 20 per cent increase output with practically no increased operating cost. Assuming that the machine's earnings are only enough to cover operating expenses, the increased earnings by motor operation will be 0.20 × $2,470, or $494 per year.

If both interest at 6 per cent and depreciation at 10 per cent be considered, $494 represents a capitalization of $3,087; that is, to effect an increase of 20 per cent in production, this amount could be added to the investment without change of net profit. This mill can be operated by a 7.5 horsepower motor, and the cost of such a motor, including a controller and the necessary changes in the machine, would amount to possibly $500 or about one-sixth the warranted investment. From the other point of view, the interest and depreciation on $500 at 16 per cent is $80, which deducted from the total saving, $494, effected by the motor drive, leaves $414 per year net gain.

In some cases the conditions will warrant the installation of a complete new equipment instead of equipping the old tool with a motor. The new tool will require increased investment, but will make possible more rapid work by taking heavier cuts, thereby warranting the investment. Whether to equip an old machine with a motor or to install a new motor-driven tool is a question calling for careful consideration in order to obtain the best results, as improved methods of applying motors to machine tool operation are continually being developed, and should be taken advantage of when any such changes in equipment are being made.

INTERCHANGEABLE MACHINE TOOL MANUFACTURING.

The accompanying illustration is of interest in that it shows specialization to an unusual degree in the manufacture of engine lathes. The view shows the assembling floor of the Lodge & Shipley Machine Tool Co., Cincinnati. In this plant the building of lathes is reduced to a strictly manufacturing basis, as opposed to the method of building one or a few machines at a time to order.

To the right of center aisle are a number of large motor-driven lathes in the process of construction. The row of machines to the left is a lot of fifty 18" patent head engine lathes. Different machines may be seen in this lot in varying stages of completion, so that they well illustrate the different operations performed in the assembling.

A most complete set of jigs and gages for all machine operations is used in this plant and all parts are manufactured in lots. The fixtures are designed to insure that all parts in a lot are alike, and that they are also duplicates of parts in previous lots.

The assembling of headstocks, tailstocks, carriages and aprons is done in separate departments from which they are sent to the main assembling floor ready to be mounted in place.

The machines in the foreground, consisting merely of the beds mounted on the legs, are in the first stage of construction.

The next operation is to place the

quick change gears in position beneath the headstock. The boxes in which the change gear shafts are journalled, fit into planed recesses in the walls of the bed and to illustrate how exactly to gage the machine operations have been performed, it is said that any one of these boxes may be taken out and turned end for end and the shaft will be found to fit its bearing just as nicely as before, and to turn without binding. If this test is further extended by interchanging boxes between two separate lathes, the results will be the same.

After placing the gears, the headstock is accurately lined up by careful scraping, and bolted in position. In the illustration, all lathes beyond the fifteenth have had the headstocks fitted.

The tailstock is scraped to a bearing, and the tailstock spindle lined with the V's in a manner similar to that employed for the main spindle in the headstock. The fitting of headstock and tailstock are, of course, two independent operations, since the headstock is attached to the outer V's of the bed, whereas the tailstock takes bearing on the inner V at the rear, and the flat surfact at the front.

The carriage is next scraped to a full length bearing upon the V's, and to alignment with the bed. The carriage is also fitted to a scraped bearing on the flat track upon which the tailstock slides, and against the vertical inside surface of the bed. The apron and lead screw, together with brackets for supporting the lead screw are attached after the carriage has been fitted.

Before the lathe leaves the erecting floor, the alignment of various parts in relation to each other is carefully tested. The lathe is then put under the belt for final inspection and test.

The entire plant is devoted to the manufacture of lathes and their attachments. This concentration of effort permits of the extended application of interchangeable manufacturing with consequent improvement in quality of product.

In examining the finished lathe, the entire absence of numbers, prick punch marks, or any designating marks upon the individual parts is at once noticeable. As all of the parts entering into the construction of the lathe have been finished to exact gage sizes and are therefore absolutely interchangeable, identification marks are entirely unnecessary.

ASSEMBLING FLOOR, LODGE & SHIPLEY MACHINE TOOL CO.

THE POWER EQUIPMENT OF A MODERN SHIPYARD.

At a recent meeting of the Liverpool Engineering Society, J. H. Collie read a paper on "The Power Equipment of a Modern Shipyard."

The paper gave a description of the power plant and the distribution and application of power at Cammell Laird & Co.'s new Tranmere works, as affording an example of one of the most modern shipyards. When this power supply was first considered, gas power was making considerable headway and giving results with which no steam plant of moderate size could compare; consequently, it was decided to install gas equipment entirely for furnace heating, electric, pneumatic and hydraulic engines, and so far the decision has been justified by the results. The gas producers are three in number, of 2,000 horsepower each. The plant is very simple in working, and is so designed and constructed that a minimum amount of labor is required for its operation, the gas production being automatically controlled so as to give only the amount required by the gas engines even under variable load. This is regulated by a small gasometer, which acts as a governor, opening the steam valve of the engine driving the draft apparatus when there is a demand for gas and shutting off steam as the de-

mond for gas is reduced. The stand-by losses are also very small. All the engines can be started up at a few minutes' notice, even if the producers have been standing idle for a week or more. The fuel used at present is a mixture of Lancashire gas slack and costs about $2.60 per long ton. As regards cost of production, the average for the four weeks ending Dec. 1 last was 0.64c per unit. During this period there was a night shift running with a light load, which made the cost higher than it would have been for day shift only. The guaranteed coal consumption per indicated horsepower per hour was 1 pound of coal, and the results on trial were slightly better than this. There are at present installed in the power station three generating sets of 250 horsepower and two of 400 horsepower, with a third of 400 horsepower under construction, together with two 260-horsepower air compressing sets and two 80-horsepower hydraulic sets. The 250-horsepower generating sets consist of single-cylinder horizontal positive scavenger engines, coupled direct to 240-kilowatt compound wound generators with a capacity of 500 amperes at 440 volts. The governing is done by varying the quality of gas, and is within 3 per cent from full load to no load. The starting is accomplished by compressed air, which is stored in reservoirs at 200-pound pressure, charged by a motor-driven compressor. The air compressors are of three-crank compound intercooling type, with a capacity of 1,200 cubic feet of air per minute each. They are direct coupled to Westinghouse 260-brake horsepower three-crank vertical gas engines running at 190 revolutions per minute, having cylinders 20-inch diameter by 22-inch stroke. The hydraulic engines are of the three-crank horizontal type, with 3¼-inch plungers, 12-inch stroke, belt-driven from 80-horsepower gas engines.

Electric Power Distribution.

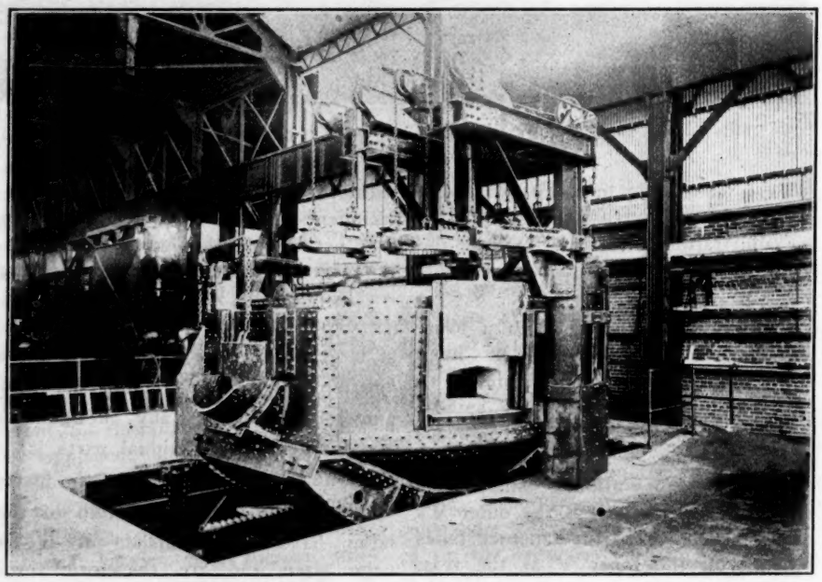
Direct current at 440 volts is used for power, and 220-volt three-wire system for lighting, with separate mains for power and lighting. Compound wound motors are used for most of the shipyard tools, as the heavy flywheels, with which they are fitted, require a considerable amount of power in starting. One rather interesting motor drive is that for the wet basin dock gates. At the 90-foot entrance there are four 20-horsepower series wound motors, driving a worm wheel through friction discs, which transmit the power through a train of gear wheels to the chain drum. The friction discs are set to slip when the motors are overloaded, and this allows the gates to come up to the wall without a jar and without opening the overload circuit breakers, which, when they come into action, throw the controller drums into the neutral position. All four motors are controlled from the same chamber, a special multicore submarine cable being laid across the dock for the motors on the opposite side. A 150-ton revolving crane is fitted with a 110-horsepower motor for hoisting, a 60-horsepower motor for topping-up, and two 12½-horsepower motors in series for slewing. A 40-ton traveling crane has a 50-horsepower motor for hoisting, a 33-horsepower motor for slewing, and a 33-horsepower motor for traveling. The mains from the power station to the shops are 0.6 square inch lead-covered paper concentric cables, drawn into fibre tubes set in concrete, with drawing-in manholes at 100-yard intervals. Spare ducts are provided for future cables. These mains terminate in iron distribution boxes, from which aerial cables with simple double-braided cotton covering, served with preservative compound, supported on insulators well out of reach of any workmen, are run to various groups of machines. The cables from the shipbuilding sheds to the slips are covered with vulcanized bitumen, and are laid on the solid system; these supply a number of cast iron distribution boxes at intervals of 100 feet, from which power and lighting are obtained for ships during construction, and for supplying current to the electric winches on the derricks. In the engine shops the aerial cables are carried on insulators from column to column, and branches are tapped off and run down the columns to cast iron drawing-in boxes and then through galvanized iron piping to the motors. For the supply of power to the Birkenhead Iron Works, which are distant about half a mile from the power station, four aerial aluminum cables are used; these are strained on insulators mounted on post office telegraph poles. As far as possible throughout the works the mains consist of aerial cables carried on insulators.

THE 15-TON HEROULT STEEL REFINING FURNACES AT SOUTH CHICAGO AND WORCESTER

By John B. C. Kershaw.

The following details of the Heroult furnaces installed at the South Chicago Works of the Illinois Steel Co. and at the Washburn and Moen plant of the American Steel & Wire Co., at Worcester, Mass., amplify the information given in earlier issues of The Iron Trade Review and bring this up to date.

The South Chicago furnace at the end of 1909 had completed 1,000 heats, and produced an average of 170 tons of steel per day. This is less than the output anticipated by M. Heroult and Mr. Turnbull when the furnace was first started, but improvements are being made which will, it is hoped, increase the daily output to 200 tons. The wear and tear on the lining of the furnace has been small. Mr. Heroult in a letter recently received by the writer states that the bottom of the furnace is practically intact; the banks have required attention from time to time and have used 10 pounds



Side View of 15-Ton Heroult Furnace at Worcester, Mass.

dolomite per ton of finished steel, while the repairs to the roof have cost 5 cents per ton.

No working figures have been published for the electrode consumption in these 15-ton furnaces, but Mr. Turnbull in a paper read before the American Electrochemical Society at the time the South Chicago furnace was started gave an estimate of 10 to 15 pounds per ton of steel. The electrodes for these furnaces are the largest yet made, and are 10 feet long by 2 feet in diameter, and weigh rather over 3,200 pounds each.

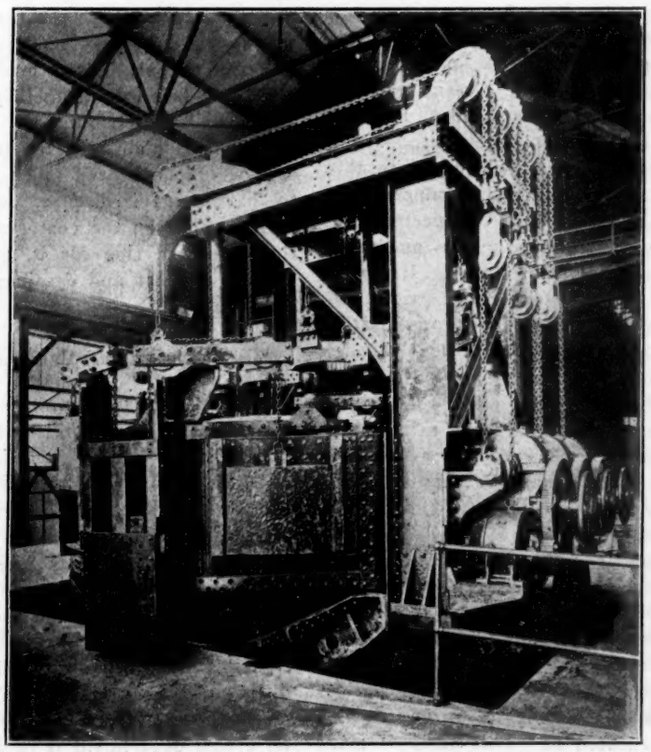
As regards power consumption, only estimates are yet available. The furnace at South Chicago is using molten metal taken direct from the Bessemer converter, and two heatings with slag are required to refine it. The first treatment is with an oxidizing slag to remove the phosphorous, and second with a deoxidizing slag to remove the sulphur and occluded gases. In the ordinary size of Heroult furnace when using cold scrap 700 kilowatt hours are necessary to produce one ton of fine steel; this total is reduced to 150 kilowatt hours when the metal is charged into the furnace in the molten state. It was hoped that the large sizes of furnace installed at South Chicago would produce one ton of fine steel with a power consumption of only 100 kilowatt hours, but in the absence of any figures for the actual working results it is safe to assume that this low figure has not yet been attained.

The power at South Chicago is supplied by three transformers each of 700 kilowatt capacity, and the writer believes that this is the first large Heroult furnace constructed for operation with three-phase current.

As regards the quality and cost of the finished steel, M. Heroult states that metal blown in a Bessemer converter and then transferred without sensible loss of heat to a 15-ton electric refining furnace, shows 20 per cent better results under mechanical tests and costs less, than metal of the same chemical composition produced by the basic open-hearth process.

The limit of size for the Heroult type of furnace has not yet been reached, according to Mr. Turnbull, and it is the intention to build later in the United States a furnace of 30 tons capacity. A furnace of this size could not, however, be worked if two purifications with different slags were necessary, and for the refining of ordinary Bessemer steel, furnaces of 15 to 20 tons capacity will probably prove the limit.

The Worcester furnace was started at the beginning of 1910, and no figures have yet been published for its working results. Figs. 1 and 2 show the side and back views of this furnace when nearly completed, but before the electrodes were placed in their holders. The writer's thanks are due to M. Heroult for much of the information and for the two photos herewith.



REAR VIEW OF 15-TON HEROULT FURNACE AT WORCESTER, MASS.

THE CARNAHAN IRON-REFINING PROCESS.

In THE IRON TRADE REVIEW, Vol. 45, page 1008, a description was given of the product of American Rolling Mill Co., Middletown, O., and for which the trade name of American Ingot Iron has been adopted. The chief value claimed for this material lies in its corrosion resisting properties, and the process employed in its production is the invention of Robert H. Carnahan Jr., of Middletown, manager for the American Rolling Mill Co. Patents covering the product and process have been issued to Mr. Carnahan, under assignment to the International Metal Products Co., at New Jersey. The process is described in patent No. 940,784 as follows:

For the usual puddling and knobbling processes for the production of iron having certain qualities, the present invention substitutes a process by treating molten iron, whereby there is obtained an iron combining in high degree a number of desired qualities not heretofore found in any single iron product.

The metal resulting from the improved method of production possesses an extraordinary high degree of malleability, it rolls into sheets remarkably free from blisters, it galvanizes in a very superior manner, it resists corrosion to a superior extent, it yields a particularly smooth surface under the action of rolls, and it works readily at such low heats as to avoid the scaling of surfaces, these combined qualities greatly reducing the percentage of waste.

The product of the process may take the form of rolling mill or bloomery ingots or foundry castings or further products worked therefrom.

In carrying out my improved manufacture I charge a high-powered basic open-hearth furnace with pig iron or cast iron or molten iron. In practice there has been substituted low carbon iron or steel scrap to a considerable extent, in some cases as high as 80 per cent of the charge. Lime or limestone is to be charged to reduce sulphur and phosphorus, these agents being preferably charged prior to charging the metal. The charge is then to be refined as in making soft steel, by the employment of ore or agitation, or both, but, unlike the steel process, recarburization at this stage is not necessary in case the charge melts specially low in carbon. The refining operation is then to be carried forward with ascending temperature as the carbon becomes reduced, the refining being prolonged and at such high heat (from one to four hours more time than is employed in making high grade soft steel, and at an ultimate bath temperature of at least 2,850 degrees Fahr.) that, by bath test, the bath will contain not over 0.14 per cent of sulphur, phosphorus, carbon, manganese and silicon taken in the aggregate. For the best results it is desirable and practicable to reduce this aggregate to less than

one half of the percentage named, and to have neither carbon nor manganese over 0.02 per cent.

The refined metal is to be poured into molds while still at high temperature, and while still molten it is to be deoxidized and degasified to such extent that the resulting product will contain not over 0.05 per cent of oxygen as determined by the method of Ledebur, and preferably considerably below this, and will contain at least 99.80 per cent of iron. The deoxidation and degasification may be very satisfactorily accomplished by the addition of aluminum in the molten metal, say two and one-half pounds per ton. If done in the furnace it is recommended that aluminum pig iron be used. Aluminum may be economized by partially deoxidizing the bath by employing pig iron say 2 to 8 per cent of the charge. The degasifying and deoxidizing agents must, of course, not be such as to lessen the above mentioned purity of the ultimate product. In tapping the metal the slag is floated off and the product is thus freed from it.

Among the various methods for oxygen determination, that of Ledebur has been chosen on account of its superior reliability and accuracy, and is herein mentioned as a standard in view of the differing results arrived at by various methods.

I claim:—

The improved manufacture of rolling mill and bloomery ingots and foundry castings consisting of the following steps: Charging a high-powered basic open-hearth furnace with iron; employing therewith eliminating agents for carbon and manganese and sulphur and phosphorus; refining the charge in molten condition at such high and increasing heat and for such prolonged period that analysis by bath test shows that the sulphur, phosphorus, carbon, manganese and silicon are not over 0.14 per cent when taken in the aggregate; and pouring the hot purified metal into molds, and treating the metal while in molten state with a deoxidizing and degasifying agent or agents to such extent that the product will contain not over 0.05 per cent of oxygen and will contain at least 99.80 per cent of iron, substantially as set forth.

Patent No. 940,785 covers the product essentially as follows:

My invention consists of a rolling mill or bloomery ingot characterized by a deoxidized and degasified slagless body crystalline in structure and containing at least 99.80 per cent of iron and containing not over 0.14 per cent of sulphur, phosphorus, carbon, manganese and silicon taken in the aggregate, and containing not over 0.05 per cent of oxygen, the oxygen to be determined by the method of Ledebur.

The two patents cover one of the radical departures in the metallurgy of iron and steel in recent years, and its further development and extension will be watched with keen interest. The present plant of the American Rolling Mill Co. is equipped to deal only with relatively light material, but the new plant now under construction at Middletown will be capable of turning out plates, bars, etc., of usual merchant weights.

WORKS MANAGEMENT AND SHOP COSTS

A Discussion of Plant Organization for Highest Efficiency at Minimum Cost

By E. C. Peck.*

The subject of factory management and shop costs is one of the most important factors in business today and is occupying the minds of a large number of managers and engineers. The United States probably owes its industrial supremacy to the ability of its captains of industry to systematically organize their business. It is true that this has been wonderfully aided by the genius and inventive ability of its engineers and mechanics, but the value of highly perfected machinery is materially reduced without organization.

Organization.

Organization is the foundation of economy in all business, and if of the right kind, it will always reduce the costs of manufacture. The most refined and elaborate system of costs is worthless without intelligent organization, in point of fact the cost system should be built up and maintained to suit each special organization. To get the best results, they must be in perfect harmony at all times, as each depends upon the other for results. An organized business without a cost system is, however, very much better off than one with a good cost system and no organization because the business could not use it. Let me make a comparison which will illustrate this. A certain manufacturing concern with which I was once connected was very well equipped with machinery and had well trained men. Its methods of manufacture were strictly up-to-date and the shop organization was good; in fact, orders went through the shop in quick time and with very little spoiled work. Each department was apparently turning out its share of the product as cheaply as possible. Thus, we may say, this factory (and by factory I mean departments outside of the office and shipping room) was organized to manufacture. However, it had no system of costs, whatever. The manager knew absolutely nothing about the costs of anything. Regular product was sold at established prices and special tools at prices which were guessed at. This business made money and grew steadily, but the manager only knew, that as a whole, his costs were all right because the money he had left each year after all expenses were paid was greater than the year before. Thus, we may say, with unchanged conditions, this business would be in no immediate danger of failure.

Another establishment with which I was familiar introduced an elaborate cost system and, after it was installed, it could not be used. Neither the business nor factory was organized, and the vast array of figures and data collected meant very little and so was stored away for future use. The small army of clerks and the red tape necessary to make out an order and get it started so hampered the factory that deliveries were slow, the product fell off and everything in general was in discord most of the time. The cost of a particular tool could be figured out by an expert with some degree of accuracy, but when the manager was confronted with high costs he did not know what to do to correct the trouble. When it became evident that he should have started in to organize the manufacturing end first, then install a system of costs to suit it, the business was in such a bad way financially that he was forced to sell out.

Thus it is plain that the latter concern would have been much better off to have organized first, saving the money spent on the cost system until the time was ripe for it, getting increased product and earnings in place of losses.

Cost System an Extravagance.

I know there are some men at the head of large establishments who think that a cost system is a piece of extravagance and yet these same men have thoroughly systematized everything else pertaining to their business. So long as the business pays this policy seems to them to be all that is desired, but the time is surely coming when they will have to complete their organization by the addition of a cost system. The proposition to expend yearly $3,000 to $5,000 on a cost department is thought to be utterly ruinous, but it has been proven time and again that this amount is

*Presented before the Metal Trades Superintendents' and Foremen's Club, Cleveland.

more than made up by avoiding the losses sustained on work, the cost of which was guessed too low because of the lack of data, which would have been at hand with an adequate cost system. In modern business it is competition that has forced the invention and perfection of highly specialized machinery, and it is also competition that will eventually force a cost system in addition to the organized factory.

In these days of close competition prices for most manufactured articles are fixed within narrow limits, and a business, to survive and grow must, therefore, look to the cost of manufacture. In a new enterprise, the selling price may be fixed by the demand that can be created for the article by good advertising, but as soon as competition arises the selling price will be governed by the cost of manufacture, and the wise manager is he who knows to a fraction of a cent what it costs to make each article. If his competitors sell for lower prices he can be pretty sure that they have lower costs, are satisfied with less profit, or else they don't know what their cost is. Which of the three it is does not matter; he must meet the price, and if he maintains his profit at the lower selling price he must reduce costs of manufacture, and with a good system of costs he can analyze each successive step in manufacture and determine what change in method or equipment will bring about the desired results.

Tabulated History of Manufacture.

A cost system may be described as a tabulated history of each successive step in the manufacture of an article, and an account of all the factors which enter into its production. From this it will be seen that, should competition or other conditions demand a reduction in the cost of manufacture, that manager who has a good organization and an adequate cost system will be in the best position to meet this demand, because he will have before him for analysis each single item, which goes to make up the cost. He will know where to curtail or where to combine operations necessary to the end in view. If in his estimation new equipment is necessary, he will have the figures at hand to show whether the amount of business will warrant the outlay. He will also know at all times just what part of his product is most profitable and can instruct the selling end to push that to the utmost. A little thought will show that in most cases this advantage alone would more than pay the entire expense of a cost department. First, that part of the business represented by the article to be pushed would be enlarged. Second, there would be increased profits due to larger sales. Third, a large number of parts to be manufactured would result in reduction of labor costs. Fourth, this would reduce overhead expense, and assuming that the less profitable part of the business was at a stand-still, its ratio to the whole would be less and might in time be abandoned altogether.

Highest Efficiency of Labor and Machinery.

Organization may be said to be the planning of the scheme of manufacture so as to get the highest efficiency of both labor and machinery. The first general organization of an ordinary size business is of course, the general officers of the company, and one of these or some one especially selected, is made general manager. This general manager becomes responsible to the company for the entire conduct of the business; it is therefore strictly up to him to so organize the factory as to obtain maximum results. The ideal general manager must be resourceful and a good judge of human nature; he should have a technical knowledge of the business and be at all times conversant with the commercial conditions; he must inaugurate and carry out the policies of the board of directors, in such a manner, that the manufacturing end is at all times in harmony with the selling and financial branch.

He must be able to surround himself with and keep a thoroughly competent corps of assistants, in fact his discernment in choosing men of ability for the heads of his organization is of vital importance. Many large companies acknowledge their success as being due in a large measure to this faculty of the general manager.

The Superintendent.

Next in importance to the manager is the superintendent, and he has, or should have, entire charge of the factory organization and is responsible to the manager for the entire conduct of the manufacturing end. A great deal, therefore, depends on the manager's selection of a man for this position. He should have a thorough technical knowledge of the business and be master of all its details. He also must have the faculty of choosing men of ability as heads of departments who can work harmoniously with himself and each other. He must be thoroughly conversant with all the prevailing conditions of manufacture, the capacity and earning power of each department. If a department is running behind or losing money he must be able to find the reason and correct it. It rests with him to keep the output of the factory in that relation to the sales that is determined upon by the manager, and at the lowest possible cost of production. This is the great "bug-bear" of all superintendents and causes more worry and loss of sleep than all the rest put together. This ability to manufacture at low costs is also his principal stock in trade, and proof positive of his ability to organize. He must be an expert on all the material which he uses.

Department Manager.

Next in importance to the superintendent is the department manager or foreman, and besides being an expert in his line, he must be able to handle men so as to get the most efficient results from both labor and machinery. He is directly responsible to the superintendent for everything that goes on in his department and everything that means the use of light, heat, power and equipment; the expense of running the department; the quantity and quality of the work; the economical and careful use of machinery and the discipline and harmonious association of the men under him. He should be thoroughly posted on all the work in his department and be able to inform the superintendent at all times as to the exact condition of the work in his department. The importance of his ability to retain efficient help is not less than that of the manager and superintendent. It is one of the important factors of the whole organization. One of his principal duties is to plan and supervise the methods of manufacture in detail, and to do this systematically and economically requires alertness, skill and thought. He should enforce discipline, be strict, but courteous at all times.

The first steps in an organization as just outlined are fundamental and if filled with men having the qualifications mentioned, the business is bound to succeed. Some enterprises are too small to support all the positions mentioned; they must of course combine some of them. Others are so extensive that there would be too much detail for any one person holding the positions mentioned to handle.

In this case each department has a general head with assistants who divide up the work and responsibility. We might liken a business to a modern ship, there is one general head who is responsible for the entire ship, then each department of the ship requires a competent man in charge, who knows how to conduct each detail of his department to get best results and to be in harmony with everything else on board. Every department working at its maximum efficiency and harmoniously with every other department will bring the ship safely to port, in the quickest time and at the lowest cost. If, therefore, the ship does not get to port without mishap, is behind time or it has cost too much, there is something wrong somewhere in the organization. So it is with business, if its yearly voyage has been unsuccessful from any standpoint, there is something wrong in the organization and the quickest way to find out is through an adequate cost system.

I have already described a cost system as a tabulated history of each successive step in the manufacture of an article and an account of all the factors, which enter into its production. This may be simple or very complicated according to the size of the business and the amount of money allowed for the purpose. On general principles, it should be as simple as possible, and only require the tabulating of the information wanted. Few things are more disturbing than the operation of a too cumbersome cost system. They all require more or less red tape and the less there is to untangle, consistent with the object sought, the better. The cost to manufacture any article is the cost of material plus the cost to produce it under certain conditions.

Overhead Expense.

The cost of material is very easily obtained compared with that of production, especially in a large enterprise, because the overhead expense is a factor in the production and becomes a complicated item as the business increases. The overhead expense is made up of all those expenses necessary to conduct the business, outside of raw material and direct wages paid to manufacture the article. It includes the salaries of the officers, superintendent, foremen, inspectors, sweepers, watchman, etc., and the upkeep of all the machine tools, jigs and fixtures as well as the cost of the supplies. To illustrate this so that it becomes plain, let us suppose you were to start to work for yourself without capital or tools or a shop of any kind, then the cost of the simplest work would be the material plus labor. If you required tools or implements, there would be an investment, and the upkeep of the tools to take care of. If your business grew and you required land or buildings to carry it on, you would have the items of taxes and insurance or rent to contend with, and in most climates also heat and light. If you prospered still further, you would require power. We might go on following the growth of your business indefinitely until there were several different plants, requiring branch stores, agencies, etc. This would bring about a large expense all of which must be included in the final cost, if you are to know exactly at what price to sell your product to make money.

Cost of an Article.

We might then describe the cost of an article to be the cost of material, plus the cost of labor, plus the overhead charges. Most accountants classify under overhead expense —taxes, insurance, depreciation, light, heat, power, repairs and unproductive labor. Unproductive labor is that which is required to carry on the manufacture but which can not be charged to or pro-rated over the cost of the fixed charges or overhead expense. The most common way of apportioning this is to divide the total overhead charges in dollars by the dollars of productive labor. This gives the amount to be added to each dollar of productive labor to take care of its share of expense. Using this plan, it is now plain to be seen that if we have the history of each successive step in the manufacture of an article, we would have the data at hand to figure the cost of each operation, we would know how much the material cost and be able to classify what was productive and what was non-productive labor. We would have an account of all the additional expense required and so fix the overhead charges. With these items correctly recorded, we could, with a fair degree of accuracy, figure the cost of each article of manufacture. The plan just outlined is used extensively, and for industries using both day-work and piece-work, it is less expensive and less liable to error, as all labor has to be reduced to dollars and cents for the pay roll. Obviously, it seems just to apportion your overhead charges to dollars of productive labor, because it is dollars you pay out for labor and expense.

There is, however, another plan which is attracting considerable attention and is known as the productive-hour plan. In this system the overhead charges are divided by the total number of productive hours and the quotient represents the number of cents to be added to the regular cost per hour for each hour of labor performed. It makes no difference what the wages of the workman are, the addition of overhead by this system is the same for each man per hour. The exponents of the average productive-hour method assert that the percentage basis cannot be a fair one, especially if there is any variation in products. They cite such examples as this: Suppose that workman *A* receives 40 cents an hour and works a 10 hour day at a bench, while workman *B*, at 15 cents an hour, works his 10 hours on a machine consuming a large amount of power and representing a considerable investment. The percentage system would not distribute the overhead expense fairly, for 50 per cent added to *A*'s job would be $2, while to *B*'s would be added only 75 cents, though the machine work should certainly be given at least as large a share of the burden as the bench work. Under the average productive-hour system each man's job would have $2 added to its cost, at 20 cents an hour overhead, which, in this instance, would be a much fairer distribution of the burden. Again, two employes may be operating lathes, one a 10 cents per hour boy, and the other a journeyman at $3 a day. Under the percentage system at 50 per cent, the boy's work would have but 50 cents added to its cost, while the man's would have $1.50.

Proper Division of Overhead Expense.

This productive hour plan becomes somewhat complicated in a large factory using both piece-work and day-work, as all piece-work would have to be paid for by the piece and then either reduced to hours at a certain rate per hour, or else take the actual number of hours consumed in doing the work. This leaves chances for error in computation. Either one of these plans will provide a safeguard against selling at too low a price. Whichever one is used, the overhead should be figured at regular intervals, as it will be found to fluctuate considerably.

Now, if a certain overhead is found necessary to cover all expenses, and all work, regardless of facilities or other conditions, bears a like propor-

tion of this overhead, we are confronted with a condition, which is not fair to a customer and which will not stand competition. To make this plain, let us assume we have a large manufacturing plant composed of a number of departments. One of these departments is equipped with the ordinary machinery bought in the open market so that any one could purchase this same equipment and be on an equal footing with us to turn out the product from these machines. Another department has machines that are bought in the open market, but on which we have put some improvements. Our foreman of this department has so trained his help and systematized his work that we can do twice as much per workman as any of our competitors. Another department has some highly perfected automatic machinery, the product of which has a labor cost of only one-fourth of that of any of our competitors. Assuming that by the percentage plan our overhead is 100 per cent, we are asked to quote on a piece of work, which will be done in the first named department. We find the cost of material $5 and the labor cost $10. To this labor cost we add 100 per cent for the overhead, making $20.00, and $5.00 profit, making the price $30.00 and submit our quotation. We are informed that a small shop has quoted a price of $24 and has secured the work. If we met this price we would lose $1.00 on the work. A little inquiry shows the reason for this, our competitor's business and expenses are small and his overhead is only 50 per cent. This makes his net cost $20, leaving him a profit of $4. We would therefore be charging a customer too much for work done in this department.

Departmental Distribution of Overhead Expense.

Again, suppose this work was done in the third department, and use the same figures. Here our labor cost compared with any of our competitors is only 1 to 4 and our competitor would then start with $40 labor cost, and adding 50 per cent overhead, his net cost would be $65 or more than twice as much as our price. It would be quite evident that we would get the order for this work and the customer a very low price. A nice way to equalize this and a perfectly safe one is to figure overhead by departments. This can be done by prorating the selling, administrative and general factory expense over each department according to productive labor, charging each department with its supplies, power, light, heat, repairs, maintenance and depreciation. Pro-rate, taxes, insurance, repair and depreciation of buildings over each department in proportion of its area to the whole plant.

This method of distributing overhead by departments seems to me to be the nearest correct of all methods so far proposed for the ordinary size factory. It relieves some of the excessive burden in departments which have small earning power and transfers it to those which have a very large one, and this is as it should be. It makes each department similar to a small shop when comparing equipment, and enables quotations to be made which will bring in orders without sacrificing profit.

Effectiveness of Supervision.

There is, however, always one important difference between the small and large factory that places the large one at a disadvantage, and that is the effectiveness of supervision. A small business operated by the owner will get more for the money paid out for labor than a large one, because the large one has to depend on men to supervise departments who rarely have the intense interest in the business that he has. This is especially noticeable where the different pieces of work are small in quantity. The large factory makes its showing on quantity and requires a large volume of business to be profitable.

What wonderful money-making institutions some of our large industries would be if the entire organization would enter into the work with the same spirit as the owner did when he was building up the business? Every superintendent and foreman ought to do it—the company's interest should be his, and they are if he is a far-sighted, thinking man. Your worth is judged by your ability. Your achievements are often discounted by the small things left undone. An accumulation of these result in losses, which detract considerably from your ability and value as an executive. Always remember you are on board this business ship to do your part toward bringing it to port on schedule time, without mishap and at a reasonable cost. Do your utmost to push the ship along, don't let it tow you into port.

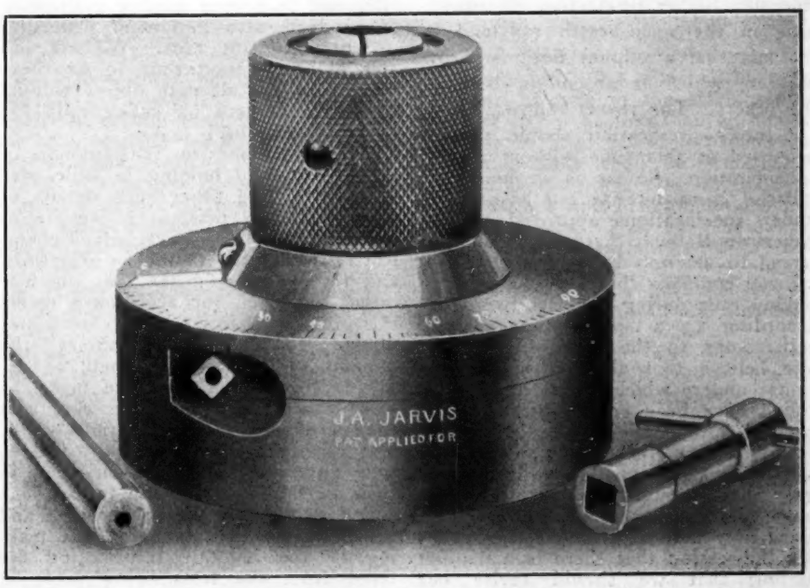
Don't expect smooth seas all the time if you ever expect to be captain. Don't think your ship is the rottenest old tub afloat; that beautiful one on the horizon may be only a mirage. If you can't work with your captain and your mates in all kinds of weather, get off the ship. Remember that mere talk won't bring a ship through a storm.

Some one has aptly said "Eternal vigilance is the price of liberty." Let us change this slightly and use it for a motto:

> "Eternal vigilance and hard work is the price of success."

THE JARVIS DRAW CHUCK.

This device is designed to take the place of the ordinary drawing-in chuck on the engine lathe, milling machine, grinder, or other machines, and the chief feature of its construction is that it may be eccentrically adjusted



THE JARVIS DRAWING-IN CHUCK.

within the limits of from 0 to 0.25 inch. By this means it will be readily seen that absolute truth in any piece of work may be secured, even though, as a result of wear, the tool loses its original accuracy. The same feature, of course, makes the chuck available for the production of eccentric work, such as small cams or bushings. Graduations on the face of the shell provide an adjustment of 0.001 inch for each graduation, and it is claimed that the chuck will register accurately. These chucks, which can be furnished in any size desired, are the design of J. A. Jarvis, and are handled by Manning, Maxwell & Moore, New York and Chicago.

STEEL RAIL SPECIFICATIONS.

Revision Recommended by Rail Committee of the American Railway Engineering and Maintenance of Way Association.

The report of the committee on rail appointed by the American Railway Engineering and Maintenance of Way Association to consider the subject of revised rail specifications appears in Bulletin No. 118 of the association, and is reproduced herewith practically complete. It will be noted that the chemical requirements proposed follow those put into effect by the manufacturers in January a year ago, and which were printed in full in THE IRON TRADE REVIEW of April 1, 1909, and also by the American Society for Testing Materials at the Atlantic City meeting in June last, and published in full in THE IRON TRADE REVIEW of July 8, 1909, the chief difference to be noted being the considerably higher proportion of manganese in the open-hearth rail and in the fact that a sulphur limit is incorporated, which is absent in both of the others. The report follows:

A new specification should not be proposed at this time without careful consideration. So far as we know, no railroad company has purchased rails under specifications approved by the American Railway Association and referred to us; nor do we know of any railway company that has succeeded in buying rails during the past two years according to a specification entirely satisfactory to the railroad company. We believe that all of the specifications under which rails have been rolled have been compromises on the part of both parties, with the general result that neither party is entirely satisfied. Our experience during the year has brought to our attention some defects in all of the specifications now before us, and acting under the impression that there is a distinct feeling that we should revise our specifications, we offer the attached specifications for your consideration. Our association has no specification for open-hearth steel rails, and in order to comply with the instructions, a specification for open-hearth steel rails is included.

We believe it necessary to submit a sliding scale for the percentages of carbon and phosphorus, which provides for increasing the carbon as the phosphorus decreases. The fixing of this scale properly is a matter requiring care and we admit that our knowledge on the subject is limited. The American Railway Association specification calls attention to this matter in the following words: "When lower phosphorus can be secured, a proper proportionate increase in carbon should be made." The amount of increase is not provided for in the specifications and this appears to us to be necessary in order to secure uniformity of practice; otherwise, the fixing of these percentages becomes a matter of special arrangement. Bessemer rails are being furnished regularly with phosphorus under the maximum allowed, and where this is done, the carbon should be raised above the higher limit now fixed in our specifications, or a soft and poor wearing rail will result; yet this condition has not been fully guarded against in rails furnished under existing specifications. The lower and upper limits for carbon have heretofore been fixed with the intention that the mills furnish rails with a composition as near between the two limits as possible. The mills, however, in order to meet the prescribed drop tests with the least difficulty, keep both the carbon and manganese as nearly as possible to the lower limits, with the corresponding result that a generally poor-wearing rail is furnished.

Deflection Under Drop Test.

Some roads have prescribed the limits of deflection to be allowed under the drop test. With our present knowledge, we believe that we should fix a minimum deflection to eliminate brittle rails and to secure greater uniformity of product; also maximum deflection to eliminate soft rails. We are not able at the present time to fix these limits, but our ultimate object will be to determine and fix such limits for the specifications.

With reference to the amount of discard, time of holding in ladle, size of nozzles, and other such details of manufacture or machinery, we are of the opinion that the physical and chemical tests required should be prescribed and that we should see that the material submitted for acceptance meets the prescribed tests. We should not dictate to the manufacturers the amount of crop which shall be removed from the top of the ingot, as this should vary with the care and time consumed at the various mills. The railroads should not be asked to take anything but sound material in their rails. The mills can furnish such sound material if the proper care and sufficient time are taken in the making of the ingots. Information derived from the tests being made at the Watertown arsenal shows definitely that sound rails cannot be made from unsound ingots, and that, therefore, the prime requisite in securing a sound rail is to first secure the sound ingot.

We recommend that the present specifications for steel rails be withdrawn from the manual of recommended practice of the association, as no longer representing the current state of the art.

Rail Section Undecided.

We submit herewith, as appendix "A", a form for specifications. It will have to be amended from time to time as we receive further information on the subject.

Standard Rail Section.—The instructions of the American Railway Association require us to study the A. R. A. sections "A" and "B" in use and submit a single type for standard. Owing to the conditions existing in 1908, very little rail was laid, and practically none of the A. R. A. sections, in such manner as to give the needed information. This year, several roads have laid A. R. A. sections of rail, with a view of determining the relative merits of the respective sections. These rails have been in the track so short a time that we are not justified in drawing any conclusions as to which of the A. R. A. types, "A" or "B", or if either is better than the A. S. C. E. sections. Bulletin No. 116, issued October, 1909, gives the statistics for rail failures for six months from Oct. 31, 1908, to April 30, 1909, as reported to the committee. These statistics do show that the difference in section can be entirely annihilated by difference in chemical composition and by the treatment in furnace and mill. The results so far obtained from the heavy base A. R. A. sections are disappointing, as we have received some rail from the mills of the new section which was as bad as we did with the old A. S. C. E. section, showing that the quality of the rail does not depend entirely upon the section. The tests to be inaugurated by the committee, combined with the results of the tests at Watertown and the performance of the rail in the track, will give us valuable data to aid us in coming to a final conclusion. The small demand as indicated by mill sales data and the slight possible variation in section of rail below 75 pounds weight per yard, makes inadvisable the consideration of new sections for this light-weight rail.

Tests of Joints Incomplete.

No recommendation as to sections of 75 pounds and over is made at this time, because of the lack of undisputed data upon which to base such design, the service value of the rail unquestionably being dependent upon chemical composition, furnace practice and mill practice, as well as upon the detail differences of dimensions, and the exact effect of each of these various factors is largely in doubt.

Rail Joints.—The tests at Watertown have not progressed as far as we would wish. It is deemed advisable to await these results before submitting recommendations on this subject. The

committee will compile the information received from the Watertown tests and publish a special bulletin with the information at hand.

Standard Drilling.—We are not ready to recommend any changes, although we are of the opinion that it is desirable to make a change. The tests now being made on joints at the Watertown arsenal should give some information to aid us in fixing a proper drilling. The drilling now adopted as standard and incorporated in the manual causes interference in the six-hole angle bars between bolts and spikes where slotted holes for spikes are used. We would recommend that railroad companies which have not adopted the standard drilling postpone action for another year.

Tests Arranged For.

Tests.—The committee is arranging for a series of tests on rails of different sections and weights of both Bessemer and open-hearth steel, manufactured by different mills, with a uniform chemical composition for each kind of rail. The tests are to embrace drop tests, tests on revolving machine at Steelton, tests on reciprocating machine at Sparrows Point, and a service test in track, the work to be done under the supervision of a man working under the committee.

Drop Testing Machine Specifications.—The following changes in the specifications as now printed in the proceedings are recommended:

Paragraph 2: Eliminate the last sentence and substitute the following: "Anvil to be guided in its vertical movement by removable finished wearing strips, these wearing strips to be suitably attached to the finished edges of the column base."

Paragraph 5: Insert the following after the word "castings" in the first sentence: "And the surface of the anvil between these pedestals shall be formed to receive a wooden block to absorb shock under broken test pieces."

Paragraph 6: In the first sentence, substitute the words "column base" for "base plate."

With the above corrections, the committee submits the specifications as printed in Bulletin No. 102, August, 1908, for record in the manual.

Conclusions.—The committee presents the following conclusions for your approval:

(1) That the specifications and plan for drop testing machine, approved by the association, be revised as follows:

Paragraph 2: Eliminate the last sentence and substitute the following: "Anvil to be guided in its vertical movement by removable finished wearing strips, these wearing strips to be suitably attached to the finished edges of the column base."

Paragraph 5: Insert the following after the word "castings" in the first sentence: "And the surface of the anvil between these pedestals shall be formed to receive a wooden block to absorb shock under broken test pieces."

Paragraph 6: In the first sentence substitute the words "column base" for "base plate".

(2) That the specifications and plan for drop testing machine, as revised above, be printed in the manual of recommended practice.

(3) That the present specifications for steel rails be withdrawn from the manual of recommended practice of the association as no longer representing the current state of the art.

(4) That the specifications for Bessemer and open-hearth rails, as recommended above, be printed in the proceedings, and that a note be added to the effect that these specifications are intended for a guide in the preparation of future specifications, and it is recommended that all railroads embody in their specifications such matter from the specifications herewith presented as in their judgment is necessary to secure better results from the mills.

(5) That rail failure statistics be collected for tabulation and analysis from railroad companies for the period of one year ending Oct. 31, instead of for a period of six months, as recommended in the proceedings, A. R. E. and M. W. Assn., Vol. 10, part 1, page 375, conclusion No. 2, and that the title of form M. W. 2005-A, proceedings, Vol. 10, part 1, page 355, be changed to read "Summary of Steel Rail Failures for One Year, Compared with the Same Period of Previous Year," with corresponding change in the footnote of the same form.

Specifications for Steel Rails.

1. The entire process of manufacture shall be in accordance with the best current state of the art.

(a) Ingots shall be kept in a vertical position until ready to be rolled, or until the metal in the interior has had time to solidify.

(b) Bled ingots shall not be used.

2. The chemical composition of the steel from which the rails are rolled shall be within the following limits:

	Bessemer		Open Hearth	
	80 lb. and under.	85 to 100 lb. inclusive.	80 lb. and under	85 to 100 lb. inclusive.
Carbon	0.40 to 0.50	0.45 to 0.55	0.53 to 0.66	0.63 to 0.76
Manganese	0.80 to 1.10	0.85 to 1.15	0.75 to 1.00	0.75 to 1.00
Silicon	0.10 to 0.20	0.10 to 0.20	0.10 to 0.20	0.10 to 0.20
Phosphorus not to exceed	0.10	0.10	0.04	0.04
Sulphur not to exceed	0.075	0.075	0.06	0.06

3. When lower phosphorus can be secured in Bessemer or open-hearth steel, the carbon shall be increased at the rate of 0.035 for each 0.01 reduction in phosphorus.

The percentages of carbon, manganese and silicon in an entire order of rails shall average as high as the mean percentages between the upper and lower limits.

4. There shall be sheared from the end of the bloom formed from the top of the ingot, sufficient discard to insure sound rails. All metal from the top of the ingot, whether cut from the bloom or the rail, is the top discard.

5. The number of passes and speed of train shall be so regulated that, on leaving the rolls at the final pass, the temperature of the rails will not exceed that which requires a shrinkage allowance at the hot saws, for a 33-foot rail of 100 pounds section, of 6½ inches, and 1/8-inch less for each 10 pounds decrease of section, these allowances to be decreased at the rate of 1-100 inch for each second of time elapsed between the rail leaving the finishing rolls and being sawed. The bars shall not be held for the purpose of reducing their temperature, nor shall any artificial means of cooling them be used between the leading and finishing passes, nor after they leave the finishing pass.

6. The section of rail shall conform as accurately as possible to the templet furnished by the railroad company. A variation in height of 1-64 inch less or 1-32 inch greater than the specified height, and 1-16 inch in width of flange, will be permitted; but no variations shall be allowed in the dimensions affecting the fit of splice bars.

7. The weight of the rail shall be maintained as nearly as possible, after complying with the preceding paragraph, to that specified in the contract.

A variation of one-half of one per cent from the calculated weight of section, as applied to an entire order, will be allowed.

Rails will be accepted and paid for according to actual weight.

8. The standard length of rail shall be 33 feet. Ten per cent of the entire order will be accepted in shorter lengths varying as follows: 30 feet, 28 feet and 26 feet. A variation of ¼ inch from the specified length will be allowed.

All No. 1 rails less than 33 feet shall be painted green on both ends.

9. Care shall be taken in hot-straightening rails, and it shall result in their being left in such condition that they will not vary throughout their entire length more than 4 inches from a straight line in any direction when delivered to the cold-straightening presses. Those which vary beyond that amount, or have short kinks, shall be classed as second quality rails and be so marked. The distance between supports of rails in the straightening press shall not be less than 42 inches; supports to have flat surfaces and out of wind. Rails shall be straight in line and surface and smooth on head when finished, final straightening being done while cold. They shall be sawed square at ends, variations to be not more than 1-32 inch, and prior to shipment shall have the burr caused by the saw cutting removed and the ends made clean.

10. Circular holes for joint bolts shall be drilled in accordance with specifications of the purchaser. They shall in every respect conform accurately to drawing and dimensions furnished and shall be free from burrs.

11. The name of the maker, the weight of the rail, and the month and year of manufacture shall be rolled in raised letters and figures on the side of the web. The number of the heat and a letter indicating the portion of the ingot from which the rail was

made shall be plainly stamped on the web of each rail, where it will not be covered by the splice bars. Rails to be lettered consecutively A, B, C, etc., the rail from the top of the ingot being A. In case of a top discard of 20 or more per cent the letter A will be omitted, open-hearth rails to be branded "O. H."

12. Drop tests shall be made on pieces of rail rolled from the top of the ingot, not less than 4 feet and not more than 6 feet long, from each heat of steel. These test pieces shall be cut from the rail bar next to either end of the top rail, as selected by the inspector.

The temperature of the test piece shall be between 40 and 100 degrees Fahr.

The test pieces shall be placed head upward on solid supports, 5-inch top radius, 3 feet between centers, and subjected to impact tests, the tup falling free from the following heights:

	Feet.
60 and 70-pound rail	16
80, 85 and 90-pound rail	18
100-pound rail	20

The test pieces which do not break under the first drop shall be nicked and tested to destruction.

13. It is proposed to prescribe, under this head, the requirements in regard to deflection, fixing maximum and minimum limits, as soon as proper deflection limits have been decided on.

(a) Two pieces shall be tested from each heat of steel. If either of these test pieces break, a third piece shall be tested. If two of the test pieces break without showing physical defects, all rails of the heat will be rejected absolutely. If two of the test pieces do not break, all rails of the heat will be accepted as No. 1 or No. 2 classification, according as the deflection is less or more, respectively, than the prescribed limit.

(b) If, however, any test piece broken under test "A" shows physical defect, the top rail from each ingot of that heat shall be rejected.

(c) Additional tests shall then be made of test pieces selected by the inspector from the top end of any second rails of the same heat. If two out of three of these second test pieces do not break, the remainder of the rails of the heat will be accepted, provided they conform to the other requirements of these specifications, as No. 1 or No. 2 classification, according as the deflection is less or more, respectively, than the prescribed limit.

(d) If any test piece, test "A", does not break, but when nicked and tested to destruction shows interior defect, the top rails from each ingot of that heat shall be rejected.

14. The drop-testing machine shall be the standard of the American Railway Engineering and Maintenance of Way Association, and have a tup of 2,000 pounds weight, the striking face of which shall have a radius of 5 inches.

The anvil block shall be adequately supported and shall weigh 20,000 pounds.

The supports shall be a part of or firmly secured to the anvil.

15. No. 1 rails shall be free from injurious defects and flaws of all kinds.

16. Rails which, by reason of surface imperfections, are not accepted as No. 1 rails, will be classed as No. 2 rails, but rails which in the judgment of the inspector contain physical defects which impair their strength, shall be rejected.

No. 2 rails to the extent of 5 per cent of the whole order will be received. All rails accepted as No. 2 rails must have the ends painted white, and shall have two prick punch marks on the side of the web near the heat number near the end of the rail, so placed as not to be covered by the splice bars.

Rails improperly drilled or straightened, or from which the burrs have not been properly removed, shall be rejected, but may be accepted after being properly finished.

All classes of rails must be kept separate from each other and shipped in separate cars.

All rails must be loaded in the presence of the inspector.

17. (a) Inspectors representing the purchaser shall have free entry to the works of the manufacturer at all times while the contract is being executed, and shall have all reasonable facilities afforded them by the manufacturer to satisfy them that the rails have been made in accordance with the terms of the specifications.

(b) For Bessemer steel the manufacturer shall, before the rails are shipped, furnish the inspector daily with carbon determinations for each heat, and two complete chemical analyses every 24 hours representing the average of the other elements contained in the steel, for each day and night turn. These analyses shall be made on drillings taken from small test ingots. The drillings for analyses shall be taken from the ladle ingot at a distance of ¼ inch beneath the surface.

For open-hearth steel, the makers shall furnish the inspector with the complete chemical analysis for each melt.

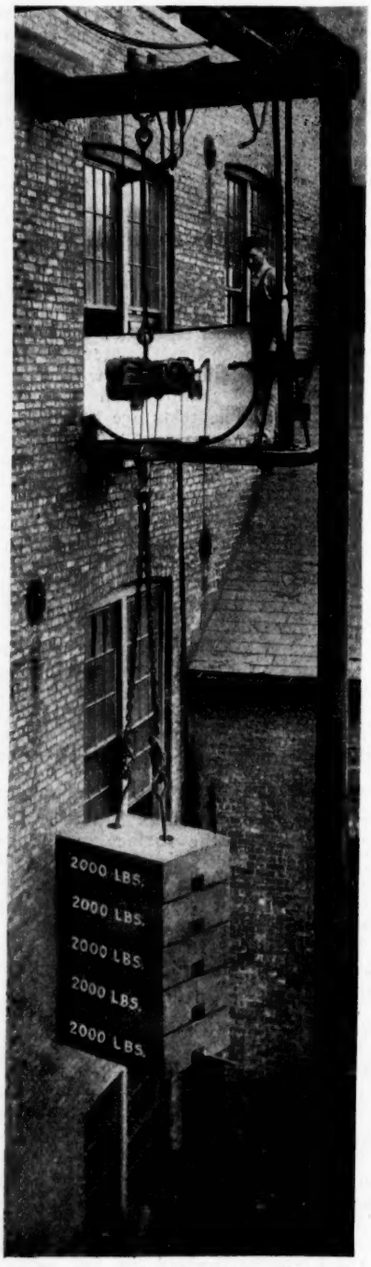
(c) On request of the inspector, the manufacturer shall furnish a portion of the test ingot for check analysis.

(d) All tests and inspections shall be made at the place of manufacture, prior to shipment, and shall be conducted so as not to unnecessarily interfere with the operation of the mill.

(e) Rails to be accepted must meet all of the requirements of the specifications.

AN IMPROVED AIR HOIST.

The accompanying view is illustrative of a type of geared air hoists which are being manufactured by the Weir & Craig Mfg. Co., Chicago. In these hoists admission of the air to the cylinder is controlled by a flat disc valve, which is scraped to a perfect fit, and when closed, as there can be no passage of air either to or from the cylinders, movement of the piston is therefore impossible, and so long as this condition is maintained the load can be held at any point. The load is hoisted or lowered by movement of the valve in one direction or the other. It will be seen then, that even if the air supply is interrupted—for instance, as in the case of the breaking of the hose or pipe connection, that with the valve centered the load would be held without danger of falling. The halftone shows one of these hoists sustaining a 5-ton load, with air hose entirely disconnected. The hoists are equipped with an automatic oiling system which provides for continuous and uniform lubrication.



THE WEIR & CRAIG AIR HOIST.

They are made in either simple or geared types and in a full line of capacities.

NEWS FROM MANY INDUSTRIES

(In order to assist the post offices in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

New Buyers:—

The following manufacturing concerns have filed articles of incorporation:

Security Foundry Co., Minneapolis, Minn.; $25,000; T. F. Blackwood, A. A. Opsahl, Erwin Booth, Minneapolis, Minn.

Chicago Structural Steel & Bridge Works, Chicago; $10,000; by Charles Henderson, Charles V. Eller and John J. Rohl.

Edward Mather's Sons, Newark, N. J.; $50,000; by William A. Mather, Mary Mather and Catherine Mather; general foundry business.

The Goby Engine Co., Cleveland; $100,000; by Christian Girl, Lewis W. Thomas, G. G. Cockburn, Clifford A. Goby and J. B. Hull.

Standard Hardware Mfg. Co., Cleveland; $50,000; S. Klein, H. J. Wilson, E. L. Fischer, M. F. Fischer and J. P. Boylan, incorporators.

National Car & Mfg. Co., Chicago; railroad and mining equipment; $125,000; by John Conrath, Thomas B. Conroy and George E. Moore.

Kingston Shipbuilding Co., Ltd., Kingston, Ont., $500,000. Provisional directors: Wm. J. Fair, Hiram A. Calvin, John McKelvey, J. M. Smith and others.

The Eclipse Engine & Mfg. Co., Springfield, Ill.; to manufacture engines; $10,000; by D. M. Parkhill, C. L. Cook, J. H. Keith, all of Christopher, Ill.

The Telelection Co., Ltd., Ottawa, $40,000, to manufacture electrical instruments and devices. Provisional directors: John A. Ewart, Wm. Metcalfe, Martin Burrell and others.

Merchant's Steel & Supply Co., Chicago; to manufacture in metals; $100,000; incorporators, W. K. Kenly, W. T. Twomey, Lewis W. Parker, Parker & Hagan, Marquette bldg., Chicago.

The Risdon Tool & Machine Co., Waterbury, Conn.; $50,000; by J. W. Rogers, C. T. McCarthy and Harry H. Schofield, of Naugatuck, and W. L. Shepard and S. A. Risdon, of Waterbury.

American Lock-Nut Co., Chicago; $5,000; by Harry H. Krinsey, Leo J. Kramer, H. C. Levey, Moses, Rosenthal & Kennedy, all of The Temple, Chicago; to manufacture nuts and bolts.

The American Malleables Co., Lancaster, N. Y.; railroads, manufacturing castings, general foundry and machine business; $500,000; by R. H. Fallows; G. M. Judd and W. Conover, New York City.

The Riverside Steel Spring Co., Riverside, N. J.; $20,000; by Harvey J. Mitchell, Roverton, N. J.; Louis J. Berkholz, 321 Race street, Philadelphia, and Henry Walter and Walter A. Warrows, both of Riverside, N. J.

Wrought Iron Range Co., Ltd., Toronto, $100,000. Provisional directors: John C. Holtby, A. W. Caldwell, Thos. Reid, H. T. Hunter and E. W. Wright.

Ontario Motor Supply Co., Ltd., Toronto, $40,000. Provisional directors: George Gray, Mary P. Arnold and M. McPhee.

American Kron Scale Co., New York City; manufacturing machinery and tools, etc., manufacturing, repairing and dealing in scales, weighing machines, etc., $750,000; by William M. Parke, 163 Lefferts place, Brooklyn; Thomas L. Hughes, 48 Central Park South, New York City, and Charles A. Collin, 2886 Broadway, New York City.

New Construction:—

W. C. Byington has begun erecting a building at Tylertown, Miss., which he will occupy as a general machine shop and foundry.

Theodore C. Fedders, Buffalo, will soon begin construction work on a one-story brick foundry at 61-65 Tonawanda street, estimated to cost $28,000.

Construction of new machine shops for the Nevada-California-Oregon railroad at Reno, Nev., has been commenced. The main building will be 72 x 192 feet, estimated to cost $10,000.

The Illinois Malleable Iron Co., Chicago, has taken out a permit to build a one-story brick addition at 2814-26 North Paulina street, at an estimated cost of $10,000.

The Marion Stove Co., Marion, Ind., is building an addition to its plant 50 x 100 feet, two stories, of brick. When the improvements have been completed, the Marion company will occupy an entire business block.

When the American District Steam Heating Co. has completed its large shops at North Tonawanda, N. Y., it will remove to its plant there whatever is left of the old plant at Lockport, including the offices of the company.

The Moline Foundry Co., Moline, Ill., will start construction of an addition to its foundry in the spring, 40 x 100 feet. This will increase the floor space by one-third and will permit doubling the daily output of castings.

The Kahn Trussed Concrete Steel Co., Youngstown, O., has let a contract to the Hunter Construction Co., of that city, for the erection of a factory building in which metal window sash and frames will be manufactured.

The Dayton Malleable Iron Co., of Dayton, O., is desirous of erecting a tramway over Fourth avenue, West Side, and also wants a portion of an alley located for the erection of a new foundry. Council at its next meeting will be asked to grant these privileges.

The Skinner Engine Co., Erie, Pa., has purchased the land and buildings occupied by the Holland Mfg. Co., immediately adjoining its plant, and before April 1 will tear down the old buildings and erect on the property additional gray iron foundry capacity for its own plant.

The Rutland railroad has accepted plans for a boiler shop to be built at Rutland, Vt., estimated with equipment to cost $60,000. The building will be 85 x 140 feet, one story, of steel and concrete blocks. An electric traveling crane of 25 tons capacity and with 60-foot span will be installed.

The Lorenson Mfg. Co., Rock Island, Ill., has let contracts for the erection of a new foundry, 40 x 60 feet, of corrugated iron, estimated to cost $1,500. The company is booking orders with such rapidity that it finds it necessary to occupy the new building before the first of the month.

The Salt Lake Engineering Works, Salt Lake City, Utah, is planning for the construction of a reduction works as an addition to its present plant. Waste babbitt metal, solder, type, etc., will be smelted and made into marketable material. J. S. Wagenheim will manage the new department.

The Carpenter Steel Co., Reading, Pa., has been making a number of extensions to its various departments and is now completing the construction of a warehouse 80 x 100 feet, the latter estimated to cost $40,000. Among other things, a lavatory and locker department has been provided for the use of employes.

The Williams Tool Co., Erie, Pa., has completed its new big building, practically doubling the size of its

plant, and in the new part will manufacture the transverse current water heaters for which it has secured exclusive patent rights. The first big installation was made on a 1,000-horsepower gas engine, built by the Allis-Chalmers Co. at Milwaukee.

Walter E. Edmonds, proprietor of the Eagle Iron Works, at Norfolk, Va., has accepted a proposition made by the board of trade of Big Stone Gap, Va., and will build a foundry and machine shop there, estimated to cost $15,000. The plant will be located on a site 225 x 400 feet, near the idle stack of the Union Iron & Steel Co.

The Brandon Machine Works Co., Ltd., Brandon, Minn., advises respecting some recently noted new construction that it has installed a 32-inch No. 3 Whiting cupola, has enlarged its cupola room 20 x 30 feet, and also its mill room 20 x 20 feet. Beside this, it has added a building 40 x 75 feet to its molding shop, increasing the output 50 per cent and causing a corresponding increase in the number of its foundry employes.

The Kewanee Boiler Co., Kewanee, Ill., is having plans prepared for the erection of five additions to its plant: An addition to the boiler shop, 122 x 128 feet, in which will be installed a riveting tower, 36 x 60 feet, and will be served by one 38-foot and one 60-foot crane; a new foundry and machine shop, 80 x 432 feet, served by a 40-foot crane; an addition to the radiator shop, 130 x 160 feet, with saw tooth roof; a radiator cleaning room, 80 x 80 feet; and a storage room of the same size. The buildings will be of brick and glass, and it is estimated that $200,000 will be expended on the improvements.

The fireproof warehouse being erected by the Superior Foundry Co., Cleveland, to replace the one destroyed by fire last October, is nearing completion and will be occupied Mar. 1 in all probability. The building is 55 x 300 feet, two stories, of concrete, brick and steel. George S. Rider & Co. are the constructing engineers, the steel construction being done by the Forest City Iron & Steel Co. Two hydraulic elevators will be placed in the warehouse. The Superior company has also let a contract to the Niagara Fire Extinguisher Co. for a sprinkler system, which is now being installed, to safeguard the remainder of its buildings.

The Niagara Machine & Tool Co., Buffalo, advises respecting recently noted new construction, that it has purchased a site adjoining the New York Central belt line about 6½ acres. Upon this site it will build a modern machine shop 200 x 200 feet. This will include a main bay for erecting purposes, served by a 30-ton electric crane; as well as side wings for the smaller machines. Part of its equipment will be removed from the shops at the corner of Jefferson, Superior and Randall streets, and, while it is likely that additional equipment will be required, yet no plans as to this feature have as yet been formulated.

General Industrial:—

The York Bridge Co., York, Pa., has increased its capital stock from $220,000 to $330,000.

The J. B. Morris Foundry Co., Cincinnati, has filed notice of an increase in capital from $100,000 to $250,000.

A petition in involuntary bankruptcy has been filed in federal court against the Reliable Foundry & Machine Co., Fort Madison, Ia., which recently made an assignment.

The Shenango Furnace Co., Sharpsville, Pa., advises that press reports of its recent fire were exaggerated, the damage being confined to a small pipe shop and the loss not exceeding $150.

The Falls Machine Co., Sheboygan, Wis., has increased its capital stock to $150,000. The company recently embarked in the manufacture of automobile engines and erected a new plant.

The Lebanon Valley Iron & Steel Co., Lebanon, Pa., which was recently organized to take over the plant of the Lebanon Valley Iron Co., has increased its capital stock from $5,000 to $700,000.

The Woodward Iron Co., Woodward, Ala., has installed an electric system of hauling at Red Mountain at its No. 3 iron ore mine, the first electric system of its kind in the Red Mountain district.

The Wisconsin Engine Co., Corliss, Wis., has just completed shipment to the Phillips Sheet & Tin Plate Co., at Weirton, W. Va., a 32 x 54 x 60 twin-tandem Corliss engine, which is intended to drive the Phillips company's plate mill.

The Oxford Iron & Steel Co., which was recently incorporated with a capital of $125,000 by Robert Petty, T. A. Hay and S. P. Bowers, was organized to take over the plant formerly occupied by the Delaware & Lackawanna Steel Co., at Oxford, N. J.

Directors of the Altoona Foundry & Machine Co., Altoona, Pa., are considering an offer from the International Steel Tie Co., which contemplates taking over the plant for the manufacture of hangers for steel ties.

The Eagle Furnace Co., Attalla, Ala., will put its stack into blast about March 1. The capacity of this furnace is about 40 tons daily of strictly warm blast charcoal iron. Eaton, Rhodes & Co., of Cincinnati, are exclusive agents for all territory.

Steps are being taken to consolidate the plant of the Standard Gage Steel Co. and the Standard Connecting Rod Co., Beaver Falls, Pa., under the name of the Standard Gage Steel Co. A new charter will be applied for and the capital stock increased.

Several propositions were presented at the recent meeting of the stockholders of the Dundee Brass Mfg. Co., Dundee, N. Y., whose affairs are in an unsettled condition. One of these propositions came from a brass manufacturing company at Rochester, N. Y.

Frank Slade has resigned as president and general manager of the Slade Tube Co., Rome, N. Y., and has disposed of his holdings. He has been succeeded in the active charge of the mills by Frank J. DeBisschop, who has been superintendent of the Rome Metal Co.

The Buffalo plant of the John R. Keim Mills, Inc., has passed into the control of the Ford Motor Car Co., of Detroit. The plant employs 600 men, and makes steel pressed products of various kinds. The Keim mills was incorporated for $350,000.

The main office of the Phillips Sheet & Tin Plate Co., it is planned, will be moved from Clarksburg, W. Va., to Steubenville, O., the latter city being in closer proximity to Weirton, W. Va., where is located the company's new plant.

The Berry Foundry & Mfg. Co., St. Joseph, Mo., has brought injunction proceedings against iron molders' local union No. 138, to prevent it from picketing the plant of the company and the homes of the non-union men. The company also asks $10,000 damages.

E. F. Berry has been appointed receiver for the Columbus Bridge & Iron Co., Columbus, O. on petition of a judgment creditor who also held a mortgage for $5,000 on the plant. The works have not been operating for some time.

John L. Packer has been elected secretary of the American Malleable Castings Co., Marion, O., succeeding James I. Beatty, resigned. Charles La Marche was re-elected president, and James C. Wallace vice president of the company, the other directors being J. J. Sullivan, James H. Hoyt and Edward Smith.

The Wheeling Enameled Iron Co., Wheeling, W. Va., has increased its preferred stock to a total of $225,000.

The old preferred stock and the new will be placed on equal bases. The directors elected for the year were: J. C. Wright, S. M. Work, Alfred Paull, M. J. Mays, William F. Stifel, J. J. Holloway and A. S. List.

The Phoenix Iron Co., Phoenixville, Pa., has posted a notice that, effective Feb. 28, the wage scale will be restored to what it was a year ago. At that time, a 10 per cent reduction was made and last August an increase of 5 per cent was made, and a like increase was promised for the end of February.

The Canadian Sheet Steel & Plate Co., of Morrisburg, Ont., has made an assignment for the benefit of creditors to A. K. Falls and E. R. C. Clarkson, of Toronto. The liabilities are estimated at $500,000, with nominal assets of about the same amount. An effort is being made to reorganize the company.

A prosperous year was reported at the recent annual meeting of the Albuquerque Foundry & Machine Works, Albuquerque, New Mex., according to reports of the officers read at the recent meeting of directors. The following officers were elected: President, Matthew Ridley; secretary-treasurer, H. B. Ray, and manager, William Bryce.

The Central Zinc Co. has leased the plant of the Superior Chain Co., Marysville, Pa., where a new process of smelting zinc will be employed. The Central company, which was organized by New York men with a capital of $50,000, will begin operating April 1. A. B. Lewin is president and manager of the company, which will probably locate its offices in New York.

E. H. Lyons, of Fond du Lac, Wis., was elected to succeed Michael J. McCugo as president of the Northern Construction Co., of Fond du Lac, at the annual meeting. John Drogan, of Green Bay, was elected vice president and Thomas E. Dockery, of Fond du Lac, secretary-treasurer. The company will expand and make a bid for railway bridge contracts.

Stockholders of the Dayton Globe Iron Works Co., Dayton, O., recently elected these directors: C. P. Folsom, F. W. Huber, A. G. Daugherty, R. R. Dickey, E. M. Thacker, H. C. Graves Jr., and D. C. Devine. The board organized by electing these officers: President, C. P. Folsom, vice president, F. W. Huber; secretary and treasurer, A. G. Daugherty.

The La Plant Tool Co., Marshalltown, Ia., has been organized to manufacture house moving outfits, and will spend $25,000 for fitting up a manufactory. The officers are: President, G. W. La Plant; vice president, J. C. Williams; secretary and manager, E. L. Williams; treasurer, J. J. McGuire. The company expects to begin manufacturing in about a month.

The Brier Hill Iron & Coal Co., at its annual meeting elected this board of directors: H. H. Stambaugh, J. G. Butler Jr., David Tod, John Tod and William Pollock. The directors reelected these officers: President, H. H. Stambaugh; vice president, John Tod; secretary and treasurer, R. C. Steese; general manager, Joseph G. Butler Jr.

The American Bell & Foundry Co., Northville, Mich., has elected the following officers: President, F. S. Harmon; vice president, Charles Filkins; secretary, William Phillips; treasurer, R. C. Yerkes. The members of the board include F. S. Neal, F. S. Harmon, Charles Filkins, Charles Coldren, William Phillips, R. C. Yerkes and L. W. Simmons.

The Quick Release Wrench Co., Beaver Falls, Pa., recently organized to manufacture a wrench manufactured by H. A. Michael with a capital of $50,000, has leased a factory at Morado, Pa., and will begin manufacturing April 1. The officers are: President and superintendent, H. A. Michael; secretary and treasurer, James A. Conkle, and general manager, Norman W. MacLeod.

At the second attempt of the receiver to sell the business and plant of the P. P. Mast & Co., Springfield, O., on Feb. 12, no bid was received. The court, it is said, will act on the offer made by Newman Bros., of Chicago, some weeks ago. A statement by an expert accountant shows that the assets had decreased, by reason of disbursements, etc., from $235,000 on Nov. 20 to $152,034.52 on Jan. 22.

The striking machinists at the plant of the Bethlehem Steel Co. have organized a branch of the International Association of Machinists and announce that they will make a determined fight. The company had agreed to consider the question of time and a half pay for overtime, but its declaration to "reserve the right to employ such men as it chose" caused a halt in the negotiations for peace.

The Youngstown Iron & Steel Roofing Co., Youngstown, O., has taken over in its entirety the business of the Youngstown Pressed Steel Co., and it will be conducted under the former management, but will be known as the pressed steel department of the Youngstown Iron & Steel Roofing Co.

Stockholders of the Beaver Iron Co., at a meeting recently held at Marquette, voted to extend the corporate life of the company 30 years. The election of officers resulted as follows: President, Edward N. Breitung, of Marquette; secretary, Fred Braskey, of Iron Mountain, who with the following constitute the board of directors: A. C. Cook, John Marsch and W. D. Rees, of Cleveland.

The reorganization of Christie Engine Co., Waterloo, Ia., has been completed and these officers elected: President, Fred K. Skinner; vice presidents, John F. Simpson and T. C. Eldredge, of Waterloo; treasurer, C. O. Lamson; secretary, John T. Christie. They, with H. O. Bernbrock, Leonard D. Miller and C. A. Merrill, the latter of Cedar Rapids, constitute the board of directors.

The Trenton Iron Co., Trenton, N. J., has just received the third order from the Panama Canal commission for eight additional patent lock wire cables. They are 2¼ inches in diameter, weigh more than 12 pounds per foot and have a guaranteed breaking strain of 225 net tons. The three orders aggregate more than 300,000 pounds of this special product which has gone to the Panama Canal.

John Stephens Jr., of Birmingham, Ala., has been elected president and manager of the Mann Edge Tool Co., Lewiston, Pa., succeeding Joseph R. Mann. Mr. Mann was chosen manager of the Mill Hall plant, succeeding his brother, Albert Mann. The board of directors has announced that the Lewistown plant, which was recently burned, will be rebuilt as soon as possible. In the future it will be used for the manufacture of single bits and other edge tools, while the Mill Hall plant will take care of the double bit trade.

At a recent meeting of the stockholders of The Canton Boiler & Engineering Co., Canton, O., the following were elected board of directors: L. B. Hartung, A. D. Housley, L. A. Housley, P. A. Housley, Herman Nieter, C. G. Hahn, Peter Hahn. The directors elected the following officers: A. D. Housley, manager and president; L. B. Hartung, vice president and treasurer; T. C. Tessem, secretary. Mr. Tessem is also chief engineer. Herman Nieter remains sales manager.

The Bigsby Mfg. Co., of Cleveland, has bought the eave trough and conductor pipe business of The Thomas Steel Co., Niles, O., including all of the machinery, fixtures and stock on hand, besides taking over all of The Thomas Steel Co.'s contracts, amounting to over 2,000,000 feet. Inasmuch as The Thomas Steel Co. has been making eave trough and conductor

pipe less than two years, its machinery is practically new, and of the latest design. This additional machinery will give the Bigsby company an annual capacity of 12,000,000 feet of pipe and gutter.

The John F. Byers Machine Co., Ravenna, O., elected the following directors at the recent annual meeting: C. C. Byers, M. Collins, F. P. Chapman, W. S. Craik, J. L. Collins, J. E. Richardson and J. A. Fisher. The board organized by re-electing W. S. Craik, president; C. C. Byers, vice president; and M. Collins, secretary and general manager. Prospects for the coming year were reported as very bright.

Stockholders of the Quincy Engine Co., Quincy, Pa., re-elected the following board of directors: L. L. Metcalfe, B. R. Summers, N. S. Good and Dr. H. M. Fritz, of Quincy; E. E. Faust, A. Nevin Pomeroy, Dr. H. M. Miley and Dr. J. J. Eckel, of Chambersburg; and H. B. Hess, of Kauffmans. The board elected these officers: President, Mr. Faust; vice president, Mr. Pomeroy; secretary, Mr. Good; treasurer, Mr. Summers. Encouraging reports were submitted for the year, showing that the company is doing a large and increasing business.

M. H. Treadwell & Co., Lebanon, Pa., recently re-elected these officers and directors: President, John H. Killinger; vice president, W. E. Farrell; secretary, William I. Gassert; treasurer, John Hunsicker Sr.; M. H. Treadwell, John H. Killinger, H. N. Daugherty, Grant Weidman and John Hunsicker Sr., directors. The Lebanon Steel Casting Co., an auxiliary to the Treadwell company, elected these officers: President, M. H. Treadwell; vice president and treasurer, W. E. Farrell; secretary, W. I. Gassert; M. H. Treadwell, John H. Killinger, Grant Weidman, W. E. Farrell, D. Dawson Coleman, William I. Gassert and Quincy Bent, directors.

The plant of the Beaumont Iron Works, Beaumont, Tex., was recently sold at public auction to C. T. Heisig and T. W. Larkin, of Beaumont, by A. C. Brock, the receiver. The successful bidders offered $50,100, and the sale is subject to confirmation by the district court. Some time ago, the property was offered for sale, but there were no bidders. When the company went into the hands of the receiver a year ago, an inventory of the property showed that it was valued at $180,000. The announcement is made by the successful bidders that the property will be extensively improved and will be operated.

A third petition in bankruptcy has been filed in New York against the Globe Foundry Co., of Port Chester, N. Y., which has offices at 51 Cliff street, New York. The action is taken to correct errors in former petitions.

The American Can Co. has purchased the plant of the Utica Industrial Co., Rome, N. Y., builder of can making machinery, and is dismantling it. The Union Can Co., an offshoot of the Industrial company, has also been taken over by the American company, and will be continued with increased capacity. The American company has acquired an interest in various can making plants where the Utica Industrial company's machinery is in use.

Stockholders of the Michigan Copper & Brass Co., Detroit, at the recent annual meeting, authorized the increase of capital stock by the addition to $200,000 to increase the facilities of the plant. Annual reports showed a favorable condition of financial affairs with enough orders booked to keep the plant running full capacity for two months, while new orders are coming in steadily. The volume of business done in 1909 was nearly double that of the preceding year. The number of directors was increased from 9 to 11, the two new members elected being George H. Barbour, Jr., and William A. Livingstone. The other members of the board are: George H. Barbour, Jeremiah Dwyer, James E. Danaher, F. M. Alger, F. T. Moran, W. A. Gorby, E. J. Corbett, D. M. Ireland and James T. Whitehead.

Julian R. Holley was elected president of the Bristol Brass Co., Bristol, Conn., at the annual meeting some days ago. Alexander Harper, for five years manager of the Chicago office, was chosen assistant general manager, a newly created office. The board of directors was also increased by two members, Albert F. Rockwell and William S. Ingraham. The new president is also treasurer and general manager of the company, the other officers being: Vice president, Henry F. English, of New Haven; secretary and assistant treasurer, Samuel B. Harper; cashier, Albert O. Wilson; auditor, William E. Wightman. Beside the two new directors, the board includes the following: Henry F. English, Julian R. Holley, George W. Mitchell, Samuel B. Harper, Roger S. Newell, Charles Carry Treadway, Dean Welch, Charles W. Gross, of Hartford, and Pierce N. Welch, of New Haven.

Trade Notes:—

The Merchants Steel & Supply Co., of Chicago, which recently was incorporated with a capital stock of $100,000, has located its offices in the Marquette building. The company, within the next 30 to 60 days, expects to have a well equipped scrap yard, which probably will be located on the Belt Line, or the Chicago & Western Indiana Ry. In this yard it is purposed to prepare and keep in stock a high grade of old material. The president of the company is W. K. Kenly, formerly president of the W. K. Kenly Co., and the vice president is W. T. Twomey, who was for a number of years connected with the Griffin Wheel Works. The board of directors includes, besides these gentlemen, W. H. McDole, former vice president of the C. I. & L. Ry., and at present chairman of the board; Frank F. Fisher, vice president of the Massillon Iron & Steel Co., and E. M. Allen, vice president of the American Refractories Co.

Fires:—

The foundry of Confer, Smith & Co., Hamburg, Pa., was badly damaged Feb. 4, the loss being estimated at $10,000.

The cooperage plant of the Colorado Fuel & Iron Co., at Little Rock, Ark., was damaged by fire to the extent of $50,000.

The hoisting apparatus at the blast furnace plant of the Buffalo Union Furnace Co., Buffalo, was damaged to an estimated amount of $1,500, Feb. 4.

The chemical laboratory of the New Jersey Zinc Co., at its South Bethlehem, Pa., plant was damaged Jan. 27, the loss being placed at $1,000.

The plant of the Zero Valve & Brass Foundry, Buffalo, was damaged Feb. 1 by fire, which originated from an overheated stove. The loss is estimated at $1,500.

The boiler and engine rooms of Thompson Drop Forge Co., and the adjoining shops of George E. Wood Tool Co., Southington, Conn., were damaged Feb. 7, the loss being placed at $10,000.

The foundry of William Mann, Martins Ferry, O., was threatened Jan. 29 but prompt work of the local fire department confined the loss to the casting floor, the damage being estimated at $1,200.

The roundhouse at the general shops of the Bessemer & Lake Erie railroad, at Greenville, Pa., was seriously damaged by fire Feb. 8, the loss being estimated at $150,000. Seven locomotives were badly damaged, as well as a portion of the building containing valuable machinery.

The plant of the Delaware River Steel Co., Chester, Pa., was seriously damaged by fire, Feb. 7. The engine house, machine shop and dynamo rooms were partially destroyed, the loss being estimated at $75,000. The company had just begun to get the furnace in good running condition, having lighted the stack Jan. 20.